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NEW YORK MEDICAL JOURNAL

INCORPORATING THE
PHILADELPHIA MEDICAL JOURNAL

AND THE
MEDICAL NEWS

A WEEKLY REVIEW OF MEDICINE

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JANUARY TO JUNE, 1915, INCLUSIVE.

NEW YORK

A. R. ELLIOTT PUBLISHING CO.

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New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843.

VOL. CI, No. 1.

NEW YORK, SATURDAY, JANUARY 2, 1915.

WHOLE No. 1883.

Original Communications.

PNEUMOCOCCUS INFECTION AND IMMUNITY.*

By RUFUS I. COLE, M. D.,
New York.

(From the Hospital of the Rockefeller Institute for Medical Research.)

For some time, with my associates in the Hospital of the Rockefeller Institute, I have been studying certain problems relating to acute lobar pneumonia. It is my purpose to consider certain aspects of this disease in the light of the results of our clinical observations and experimental studies. Almost none of the problems concerning pneumonia can we consider as definitely and finally solved. I can only hope to suggest certain points of view, more or less new, for which our work offers some justification. I wish first to consider certain problems relating to epidemiology; I shall then discuss the studies we have made in an attempt to explain the nature of the intoxication, and finally shall consider briefly the question of specific cure.

Most of the cases of acute lobar pneumonia occurring in all parts of the world are apparently caused by *Diplococcus pneumoniae*. Certain observations, however, indicate that all these cases that are apparently due to pneumococcus do not have an identical etiology. Ten years ago Schottmüller described a peculiar type of streptococcus associated with certain cases of pneumonia. These organisms have very large capsules and the growth on agar is sticky and mucoid. When injected into animals the inflammatory exudate is very sticky and tenacious, as is also the lung exudate in patients dying from infection with this organism. Schottmüller called these organisms *Streptococcus mucosus*, but, from further study, we prefer to call them *Pneumococcus mucosus*, because they are much more closely related to pneumococci than to streptococci. The cases with which they are associated are extremely severe, and it is probable that the disease produced by these organisms, certainly as regards epidemiology, is quite different from the disease caused by other pneumococci. No further differences were detected in pneumococci and they were all thought to be essentially the same, until four years ago when Neufeld and Händel showed that an immune serum produced against certain races of pneumococci was not effective against all. Against many races this immune serum was found

to have no action whatever. With the opening of the Hospital of the Rockefeller Institute a study was undertaken of all the races of pneumococci isolated from cases of pneumonia. Dochez and Gillespie immunized rabbits to each one of these races and studied the immunity reactions. It was found that a number of the races were similar. All of this group were agglutinated by the serum obtained by the immunization of animals to one of them, and such a serum also protected mice from infection with any one of the group. A second smaller series was also found to have common immunological characters, but these characters were entirely distinct from those of the first group. Finally a considerable number of races were found which had no common immunological features; each race appeared distinct. We have simply named those groups in which a considerable number of organisms were found to have common immunological characters Types I and II, the *Pneumococcus mucosus* group has been called Type III, and the group of organisms having no common immunological characters we have called Type IV, or preferably Group IV.

For the past two years all the organisms isolated from cases of pneumonia have been studied as to their immunological reactions. The results have fully confirmed the original observations made. A study has now been made of the organisms obtained from 150 cases of pneumonia. The result of this study has shown the relative frequency of the various types to be as follows:

TABLE I.

CLASSIFICATION OF 150 CASES OF PNEUMONIA		
Type of organism.	Number of cases.	Percentage.
I	52	35
II	44	30
III (Mucosus)	17	11
IV (Heterogeneous)	32	21

Efforts have been made further to classify the organisms of Group IV, but up to the present each race of this group seems to be distinct from every other race so far as immunological characters go.

We have also compared the organisms isolated by Neufeld in Germany with the types found here. His original race corresponds to our Type I. In his study of immunological characters of pneumococci he was able to observe only a small number of strains, but he also found several races having common immunological characters differing from those of the main type. He immunized a horse to one of these and named the serum after the horse, Serum Franz. He has also sent us a sample of this serum and it has been found to be active against all the organisms of our Type II. It is therefore

*The Packard Lecture for 1914, delivered before the Philadelphia Pediatric Society and the Rush Society, November 30, 1914.

evident that in Germany the predominating types of pneumococci are the same as those found here. During the past winter Walker has carried out observations similar to ours on a series of races of pneumococci isolated from patients with pneumonia in the wards of the Peter Bent Brigham Hospital, in Boston. He has also found examples of the four types of pneumococci as we have classified them. Dr. Paul Lewis has also kindly permitted me to mention the observations he has made on a series of cases of pneumonia occurring in the Pennsylvania Hospital in Philadelphia. The type of organism was determined in ninety-five cases. Of these organisms, thirty-three per cent. were of Type I, twenty-seven per cent. of Type II, three per cent. of Type III, and thirty-six per cent. of Type IV. It is evident, therefore, that the results he has obtained in regard to the relative frequency of occurrence of the different types closely correspond with our observations in New York.

From our study, certain other average morphological and cultural differences in the groups have been found, but these differences are not so sharply cut and of sufficient constancy to permit of differentiation on this basis alone. The Type II organisms are in general more virulent for animals than those of Type I, or those of Group IV, though this also is not constant. However, many races of Group IV have little virulence for animals. Since the characteristic features, including immunological reactions, of Types I, II, and III, seem to be more definite and fixed than those of Group IV, in which there seems to be more tendency to variation, we have come to speak of the former as the fixed types and of the latter as the nonfixed, atypical type.

It seems from these studies that we are no longer justified in believing that the etiological agents in all cases of pneumonia are the same, but that there are several kinds of pneumococci causing pneumonia. For the present, however, it seems best to consider these different kinds as types of a single species.

The clinical manifestations of infection due to these different types are also not identical, certainly as regards severity. This is very well shown by the mortality statistics for infections due to the different types.

TABLE II
MORTALITY

Cases Deaths	Number per cent.	Death	Per cent.
I	33	7	21
II	27	2	7
III	3	2	67
IV	32	9	28

Doctor Lewis has also permitted me to mention the mortality statistics of the cases occurring in the Pennsylvania Hospital, classified according to the type of organism causing the infection.

Cases	Deaths	Number	Per cent.
I	33	7	21
II	27	2	7
III	3	2	67
IV	32	9	28

It is evident again that fairly close agreement exists between his findings and ours.

We may conclude that there is one type of severe infection, relatively infrequent, due to pneumococci

of Type III, in which the mortality is high; second, a group of cases of lesser severity, due to organisms of Type II; third, a group of cases only slightly less severe, due to pneumococci of Type I; and finally, quite a large group of cases due to the non-fixed type of organisms, Type IV, in which the symptoms are milder, and which usually end in recovery. From the standpoint of prognosis alone, therefore, the determination of type of infection in the individual case is of considerable importance.

The conditions in pneumonia are only different in degree from those found in typhoid fever. Formerly all cases running the clinical course of typhoid fever were thought to be identical. Now it is known that, in addition to infection with typical *Bacillus typhosus*, infections with a similar clinical course may be caused by organisms closely related, namely, Paratyphoid bacillus A and Paratyphoid bacillus B. It is true that these different organisms show slight cultural differences in addition to their immunological differences. It must be remembered, however, that if we had not happened to study the ability of bacteria to ferment the different kinds of sugar, these different types of organisms would also be considered identical except for their immunological reactions.

A similar state of affairs exists among the bacteria causing bacillary dysentery. It is now known that there are at least four different types of organisms causing this infection. They are spoken of as the Shiga-Kruse type, the Flexner type, the Strong type, and the Y type. The different types of dysentery bacilli also have slight cultural differences, but they are very closely related. Immunologically they have certain common characters, and we express this by saying that in addition to specific receptors they all have common ones. Thus while the agglutination is relatively specific, an immune serum against one type has some power of agglutinating all. In this respect, therefore, they are less specific than are the various types of pneumococci, since the agglutination reactions of the latter, at least as far as Type I and Type II are concerned, seem to be absolutely specific.

It is now of importance to know whether the organisms of the more fixed types of pneumococci occur in normal mouths, and if so, with what frequency. Careful studies have been made by Dochez and Avery,¹ of the pneumococci found in the mouths of twenty normal individuals who had not been intimately in contact with pneumonia patients. Although pneumococci are present in eighty per cent. of normal mouths, in no instance were pneumococci of Types I, II, or III found; all were of Group IV. Studies were also made to detect the presence of pneumococci of the fixed types in the mouths of persons in close contact with pneumonia patients. In several such cases pneumococci of the fixed type were found. These studies indicate that contact infection may be concerned in the epidemiology of pneumonia.

During the past summer Doctor Lyall,² of the Tuberculosis Sanitarium, at Otisville, has made a study of pneumococci isolated from the mouths of fifty patients suffering from tuberculosis, and he has

¹ Report not yet published; to appear in *Journal of Immunology*, May 1930, 58A, 1934.

² Report not yet published; to appear *ibidem*.

kindly permitted me to refer to his work. Pneumococci were found in a large proportion of the mouths and sputa examined, but in most cases only pneumococci belonging to Group IV could be isolated.

Studies have also been made by Dochez and Avery of the flora of the mouths of patients during and following convalescence from pneumonia due to one of the fixed types. In most cases the specific organisms disappear within a few weeks after crisis and are replaced by organisms of the fourth group. Delayed resolution or the development of complications seems to favor the persistence of the typical types in the mouth. In one case, however, a pneumococcus of a fixed type was still present ninety days after crisis.

These studies indicate that it may be justifiable to consider persons who harbor pneumococci of the fixed types for a considerable length of time after convalescence, and those contacts and others who harbor those organisms, as carriers of infection. If this is true, the epidemiological features of pneumonia appear less obscure and the difficulty of understanding the mode of infection in this disease becomes less great. Studies made to determine the best method for the production of experimental pneumonia in animals, as well as clinical observations in man, indicate that changes in the local conditions in the lung in man may precede infection in a considerable number of the cases of pneumonia, and that it is due to such changes causing local lowering of resistance, that infection occurs. It is probable, however, that the importance of this local decrease in resistance may be quite different in the different types of pneumonia, owing to the different types of pneumococci. It is well recognized that different kinds of bacteria possess different degrees of parasitism, that is certain ones are better adapted to growth in the animal body than are others.

The organisms producing pneumonic plague, for instance, are undoubtedly parasitic to a very high degree. It is said that during an epidemic of pneumonic plague practically every person exposed acquires the disease, and almost all die. In pneumonia of this variety local changes in the lungs probably play very little role in infection. From our studies of pneumococci it is possible that the different types possess different grades of parasitism. This property is apparently most highly developed in the fixed types of pneumococci, Types I, II, and III. In infections with these organisms contact infection, or infection from carriers, may be of great importance and lowered local resistance of little significance. Carriers of the fixed types of pneumococci may be found to play a considerable role in the spread of pneumonia, just as carriers of typhoid bacilli do in the spread of typhoid fever. On the other hand, organisms of Type IV, which resemble or are identical with the pneumococci normally present in the mouth, may possess a very slight grade of parasitism. In infections due to this type of organism, changes in the lung favoring the growth of bacteria may constitute the essential primary stage in the process.

It is realized that this conception of the epidemiology of pneumonia may be only roughly correct. It

closely harmonizes, however, with the facts already known.

The facts on which these observations are based are still too few to justify any conclusions as to the best practical measures to be taken for the prevention of pneumonia, but undoubtedly when we have sufficient knowledge to justify serious consideration of this problem, the question of differences in type of the organisms concerned will have to be taken into consideration, just as it must be, as we shall show later, in the matter of treatment. Certainly the cases due to the fixed types must receive a different consideration from those due to the atypical mouth strains. The fact that it is in the cases due to the former types that the high mortality exists indicates that it may be possible to lower the mortality from pneumonia through prevention measures.

There is one other possibility that should be considered in connection with our discussion of epidemiology. Several papers have now appeared dealing with the question of mutation among bacteria or transformation of one form of bacteria into another. Thiele and Embleton have described the transformation of *Bacillus mycoides* (a nonpathogenic soil organism) into virulent anthrax bacilli. Mme. Victor Henri has reported the transformation of anthrax bacilli into cocci under the influence of ultraviolet rays. Dostal, by suitable treatment, believes that he has produced from the tubercle bacillus an organism which is nonacidfast and nonpathogenic. Rosenow also has reported the possibility of transforming, not only pneumococci of different types one into the other, but also pneumococci into streptococci, streptococci into pneumococci, and apparently repeating this process indefinitely. It is evident that if definite proof was brought that such transformations occur frequently, that the transformation of one type of pneumococcus into another may occur within a short time in the mouth, for instance, such an observation would preclude the value of any epidemiological studies based on differences of type, although it would not necessarily have any importance in connection with the problem of specific cure. If such transformations may occur, contact infection may play little role in pneumococcus infection, and the disease may arise because of the transformation of the pneumococcus of the normal mouth into one of the fixed types. From what is known of other biological reactions, however, it seems little likely that such transformations occur. Certainly such repeated transformations backward and forward are unknown to biologists. Nevertheless, such a possibility is difficult to exclude, just as it is difficult to deny that colon bacilli may be transformed into typhoid bacilli. Nothing in our own personal experience, however, suggests such a transformation of one type into another, although we have carefully looked for it. We have now studied several hundred races of pneumococci, some of them over a period of three years. They have been repeatedly transferred on artificial media and repeatedly passed through animals, some of them now through as many as a hundred animals, and we have yet to see an example of transformation. They always breed true. An organism

of Type I remains Type I and an organism of Type II remains Type II.

Certainly after infection has occurred, such changes do not take place in the body, at least with any frequency. Cultures are frequently made every day from our cases of pneumonia. Also in certain late complications, such as empyema or joint infection, cultures have been made frequently, and in no case have we found at one time one type of organism and at another time another type of organism.

Doctor Chickering⁸ has also made a study of the agglutinins present in the blood of patients suffering from pneumonia. Agglutinins in the nonfatal cases usually appear about the time of crisis. They disappear after two or three weeks except in the cases suffering from complications such as delayed resolution or empyema. In such cases the agglutinins may persist for a long time, even several months. In none of the cases, however, have agglutinins ever been present for any type of organism except that isolated from the infected patient. In case of infection with an organism of Group IV only the homologous strain has been agglutinated. Until we have more definite evidence of transformation, therefore, it does not seem necessary to take it into too serious account in our consideration of the epidemiology of pneumonia. It is probable that we shall find that in pneumonia the same general principles govern as in the case of typhoid and other infectious diseases.

NATURE OF THE INTOXICATION.

It is now known that bacteria growing on the surface of the body, or in cavities communicating with the external world, or even growing in the blood and tissues, do not necessarily cause death or even give rise to marked symptoms. For instance, rabbits, and even man, may act as carriers of *Bacillus typhosus* for months, without exhibiting harmful effects. To gain any conception of the nature of the general manifestations of the disease pneumonia, therefore, we must learn more of the manner in which the pathological symptoms are brought about than merely recognizing that living bacteria are present.

As is well known, bacteria like diphtheria and tetanus bacilli produce their effects by a poison which is produced in the body when the bacteria grow there and carry on their metabolic activities. These poisons are not only produced in the animal body, but also are formed when the bacteria grow outside the body in a suitable culture medium. In the case of pneumococci and many other bacteria, this production of a poison outside the body does not occur. This fact, however, does not exclude the possibility that they do produce such a poison when growing within the body, and that to this poison the pathological and functional changes are due. The efforts to detect this poison in the infected animal, however, have been just as unavailing. The blood and body fluids apparently do not contain such a poison. Up to the present time, therefore, it has been impossible to bring any direct proof that the effects of pneumococcal growth in the body are due to the elaboration of a poisonous substance.

Friedberger and also Neufeld have shown that if pneumococci are treated in a special way, with immune serum and complement, the solution so obtained is toxic for guineapigs when it is injected directly into the veins. Since the symptoms produced, and the kind of death resulting, resemble, or are identical with the phenomena seen in acute anaphylaxis, the name, anaphylatoxin, was given to the toxic substance so produced. Based on these observations, a theory of the nature of infection by pneumococci and other nontoxin producing bacteria has been formulated. According to this theory such bacteria do not produce any poison during their metabolic activities, but in the animal body, by the action of certain substances in the serum, the bodies of the bacteria are partly digested and the digestion products of the proteins of the dead bacteria, or so called split products, are poisonous.

It was later shown by Neufeld and Dold, and also by Rosenow, that to produce these poisonous substances the action of immune serum is not necessary, but that if the washed bacteria are simply placed in salt solution at 37° C. for from twelve to twenty hours or longer, the bacteria undergo partial solution, and when the solution so obtained is injected intravenously into guineapigs it produces the same toxic effects as anaphylatoxin. These investigators considered that this fact did not invalidate the theory of infection previously given, but merely suggested certain modifications. It was suggested that in salt solution, digestion of the bacterial substance occurs, and that this digestion is due to the action of ferments contained within the bodies of the bacteria themselves. The process is then one of autolysis. During this digestion split products arise which are identical with those in anaphylatoxin.

The evidence, however, that the effects of such solutions are due to the products of digestion or split products, has not seemed conclusive. We sought to learn whether or not similar results could be obtained from solutions of bacterial cells prepared under conditions in which digestion could be excluded, or at least rendered unlikely. As is well known, when bile or a solution of sodium cholate is added to washed pneumococci, they rapidly dissolve, and a clear solution is obtained, containing no trace of the bacterial bodies. When large numbers of these bacteria were so dissolved, and the resulting solution diluted with salt solution so that the amount of cholate present was insufficient to have any toxic effect, it was found that this solution, when injected into guineapigs, is also toxic, the effects of the injection being identical with those following the injection of the so called anaphylatoxin or autolysate.

While the experiments with sodium cholate were suggestive, they were not conclusive, since it is possible that, during the short time the bacteria are kept at 37° C., undergoing solution, lytic or digestive processes may be proceeding. It has lately, however, been possible to produce solution of the bacterial cells under conditions in which digestive processes, as we understand them, do not occur. Various methods were tried, but the most satisfactory results have been obtained by freezing the bacteria and grinding them in a small amount of salt solution while still frozen. The frozen and ground bacteria are mixed with salt solution, when a slightly opaque

⁸Chickering, Texas L. *Journal of Experimental Medicine*, XX, 599, 1903.

fluid is obtained, containing practically no intact bacterial cells. This entire procedure can be carried out in the cold. Now if some of this fluid is injected directly into the vein of the guineapig, an exactly similar result is seen as when the anaphylatoxin, the autolysat, or the cholate solution is injected. It therefore seems that sufficient evidence has been adduced to indicate that the toxic substance, whatever it is, is contained within the bacterial cells, and is set free whenever the bacterial structure is injured and the bacterial substance goes into solution.

Jobling has also lately shown by chemical analyses that no evidence of splitting of the bacterial protein can be obtained after bacteria are allowed to undergo lysis in salt solution. This observation affords further evidence that the effects of such bacterial solutions are not due to bacterial split products. It seems more probable, therefore, that the toxic effects of bacterial solutions are not due to any products arising during digestion of the bacterial cells, but are due to substances contained within the bacteria, which are set free when the bacteria undergo solution. This theory of bacterial intoxication was long ago promulgated by Pfeiffer, who named these hypothetical substances, endotoxins. According to this view bacteria produce their effects, not by living, but by dying, and so setting free the contained poisons.

In addition to the anaphylactoidlike action of the bacterial solutions, they have been found to have a toxic action on red blood cells *in vitro*, which is not exhibited by the emulsions of the intact pneumococcal cells. It has long been known that when certain bacteria, as streptococci and *Bacillus tetani* are grown in media containing red blood corpuscles, hemolysis occurs. Hemolytic substances, moreover, have been found to be present in the bacteria-free filtrates of the cultures of certain of these bacteria. Pneumococci, however, do not have such a hemolytic action when they are grown on blood containing media and the culture filtrates contain no hemolytic substances. It has been found, however, that the solutions of the bacterial cells, produced as I have mentioned, are very actively hemolytic when added to emulsions of blood corpuscles.

The question at once arises whether the toxic action of such solutions for guineapigs and the hemolytic action for red blood corpuscles are of the same nature, and due to the same substance. It has indeed been found that these two properties of such solutions are influenced by the same measures. For instance, heating such solutions for one half hour at 56° C. completely inhibits both their toxic and hemolytic action. Passing the solutions through Berkefeld filters also destroys the toxic and hemolytic action, owing possibly to the adsorption of substances upon which these reactions depend. Digestion of the solution with trypsin also inhibits these actions. There is, however, one essential difference; it has been found that when such solutions of bacterial cells are injected into animals, the serum of such animals shows definite antihemolytic power. While normal rabbit serum does not inhibit hemolysis in a dilution of one to ten, the serum of a rabbit immunized to the bacterial solution will completely inhibit hemolysis in a dilution of one to 100, and even partially in a dilution of one to 1,000. On the other hand, such a serum has not been found to have a neutralizing power for the toxin when this is in-

jected into guineapigs. This at once suggests that the substance in the dissolved bacteria upon which the hemolytic action depends is not identical with that responsible for the toxic action in guineapigs. Since the hemolytic substance has been shown to have definite antigenic properties, it seems justifiable to conclude that in the solution of the bacterial cells there is a true toxin in the Ehrlich sense, and that we may describe this as a bacterial, hemolytic endotoxin. The toxic effect of such solutions for guineapigs, however, may be dependent upon an entirely different substance or property of the solution, and it may be only a coincidence that both the toxic and hemolytic properties of the solutions are affected by the same measures.

Whatever may be the nature of the substance and of the reactions by which hemolysis and toxic effects in guineapigs are brought about, we must bear in mind that the evidence is still very inconclusive that either one of these reactions is of significance so far as the intoxication in lobar pneumonia is concerned. I have dwelt on them only because they constitute the sole evidence so far obtained for the production of poisons by pneumococci, and also because it is quite possible that they may be of significance in the disease, even though this is not evident at present. On the other hand, there is considerable evidence to indicate that it is not through death and solution of the bacteria that the lesions and symptoms of pneumonia are produced, but that these are the result of changes caused by the life processes of the living, active bacterial cells. The injection of dead pneumococci, unless in extremely great numbers, has little effect on the experimental animal. Even when the animal is infected with large numbers of living pneumococci, little or no effect is seen at once. It is not until the bacteria are actively multiplying that the effects become manifest.

It is very difficult to conceive, however, how bacteria, by simply carrying on their life processes, and without the production of soluble toxins, can produce the phenomena which constitute the obvious features of the infection. Indeed, this conception was entirely impossible for me until I considered this problem in connection with certain experiments which I have lately carried out. It has been known for some time that when pneumococci are grown on blood plates the colonies take on a greenish tint. When they are grown in fluid media containing blood or hemoglobin, the medium acquires a greenish brown color. This change is undoubtedly due to the formation of methemoglobin. Butterfield and Peabody have demonstrated that methemoglobin is formed when pneumococci are cultivated in media containing blood. A similar change in color, though not so pronounced, is seen in the blood of animals dying of acute pneumococcus septicemia, and to a still less extent in the blood of patients severely ill and dying of pneumonia. Peabody has shown that during the terminal stages of fatal cases of pneumonia there occurs a progressive decrease in oxygen content and oxygen-combining capacity of the blood. This is evidently due to the transformation of oxyhemoglobin into methemoglobin. A similar change occurs in the blood of rabbits severely infected with pneumococci. The following table (Table III) indicates briefly the different kinds of toxic effects produced by pneumococci or their cultures.

TABLE III.

FOURTH ACTION OF PNEUMOCOCCI.

1. Filtrates of cultures	No specific effect.
2. Solutions of bacterial cells.	
(a) In salt solution (autolysis)	(a) Acute death of guinea pigs.
(b) In glucose solutions	(b) Hemolysis of red blood corpuscles.
3. Broth cultures	Transform oxyhemoglobin into methemoglobin.

We have thought it of importance to study further the phenomenon of the transformation of oxyhemoglobin into methemoglobin by pneumococci, to learn, if possible, the nature of this reaction. The following table (Table iv) indicates briefly certain of the observations which have been made, which appear to be of importance.

TABLE IV.

TRANSFORMATION OF OXYHEMOGLOBIN INTO METHHEMOGLOBIN.

	Red blood corpuscles.	Dextrose.	Methemoglobin formation.
Broth cultures living pneumococci	+	o	+
Broth cultures killed pneumococci	+	o	o
Solutions of bacterial cells	+	o	o
Filtrates of bouillon cultures	+	o	o
Washed bacteria in salt solution	+	u	+
Washed bacteria in salt solution	+	u	+

While the reaction occurs in broth cultures containing living pneumococci, no reaction whatever occurs if the bacteria are killed before adding the blood. Solutions of bacterial cells obtained by none of the procedures previously mentioned are able to cause the reaction. If the living bacteria are removed from a bouillon culture, either by filtration or centrifugation, the supernatant fluid has no power to cause the reaction. The reaction is therefore not due to any soluble substance formed in the culture fluid. Moreover, if the living bacteria removed from the bouillon culture are washed and made into an emulsion in salt solution, no reaction occurs after the addition of red blood corpuscles. If, however, to this emulsion of bacteria and red blood corpuscles in salt solution a trace of dextrose is added (even as little as one part of a five per cent. dextrose solution to 10,000 parts of salt solutions), the reaction quickly occurs. The reaction occurs not only when dextrose is used, but also with other sugars, though these must, in general, be used in larger amounts. The reaction occurs when, instead of sugar, egg albumin is present. This must be present in large amounts, however, and, since the presence of traces of sugar cannot be excluded from such substances, it is possible that even in this case the reaction may occur because of the presence of such traces of sugar.

We have concluded from our studies that for the formation of methemoglobin by pneumococci the presence of living bacteria is necessary, and, since the presence of minute amounts of nutritive material is also necessary, it is probable that these bacteria must be actively carrying on nutritive functions, probably undergoing multiplication. As the experiments show, the bacteria do not act through the intervention of any substance that can be detected in fluid medium. Such substances must be present, however, in the fluid immediately surrounding the bacteria, or at least there must be changed conditions here, since the change may occur, not only when the hemoglobin is in solution, but also when the hemoglobin is contained within blood corpuscles, the bacteria and corpuscles being only in contact. If the corpuscles and bacteria are separated by any limit-

ing membrane, however, as by a dialyzing membrane, or even a thin layer of oil, no reaction occurs. Other observations made in our laboratory by Gillespie,⁴ and observations made by Baerthelein,⁵ offer other examples of changes in the immediate vicinity of bacteria due to substances which become inactive when they diffuse throughout the fluid. It is possible, therefore, that the formation of methemoglobin depends upon some reactive substance given off by the bacteria, and that this substance becomes inactive as soon as it diffuses through the surrounding medium.

The suggestion at once occurs that the reactive substance given off by the bacteria is of the nature of a ferment, this ferment being rapidly weakened or destroyed by diffusion. It might be expected, however, that such ferments could be detected in the extracts of the bacterial cells, and, as we have shown, such is not the case. Nevertheless, as Warberg has pointed out, cellular structure plays an important part in ferment activity, even though we must believe that the activities of the cell are due to soluble enzymes only. The activity of zymase, for instance, is markedly less than that of a corresponding number of yeast cells.

Studies concerning the formation of methemoglobin by means of chemicals, indicate that this reaction is always of the nature of an oxidation. In order to obtain more light on the question of methemoglobin formation by pneumococci, therefore, we have studied the effect of the presence or absence of free oxygen on the reaction. For the purpose of determining the effect of oxygen, we have made certain tests in which free oxygen was continuously bubbled through the mixture in order to provide an excess of oxygen, and other tests in which oxygen was removed, by carrying on the experiment in an atmosphere of hydrogen, and observing the time which elapsed before the reaction occurred.⁶

The following table (Table v) shows the results obtained in one of a series of such experiments.

TABLE V.

EFFECT OF OXYGEN IN TRANSFORMATION OF OXYHEMOGLOBIN INTO METHHEMOGLOBIN.

	Minutes.
Broth culture + Hb solution	10
Broth culture + Hb solution (O in excess)	10
Broth culture + Hb solution (O absent)	6
Broth culture (O removed) + Hb solution (O removed)	17

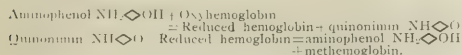
The interpretation of these facts is somewhat difficult, but observations made by Heubner on the transformation of oxyhemoglobin into methemoglobin by organic substances, such as aminophenol, suggest a possible explanation for the phenomena observed. As is well known, certain of the organic substances causing the formation of methemoglobin are oxidizing substances, others are reducing substances. Heubner thinks, nevertheless, that the reaction is always of the nature of an oxidation. In the case of certain reducing substances, these are first oxidized, this occurring better in the presence of oxyhemoglobin, and are then again reduced during the formation of methemoglobin. In the case of aminophenol, for instance, this substance is

⁴Gillespie, L. J., *Journal of Experimental Medicine*, xxvii, 581, 1913.

⁵Baerthelein, *Centralblatt für Bakteriologie*, lxxv, 285, 1924.

⁶A full discussion of these experiments is given in the writer's paper, "The Production of Methemoglobin by Pneumococci," *Journal of Experimental Medicine*, xx, 503, 1913.

thought to be first oxidized, this occurring better in the presence of oxyhemoglobin, and then reduced, giving up its oxygen to form methemoglobin. The nature of the reaction which is thought to occur is as follows:



It has been shown experimentally that, in the case of aminophenol, a given amount of the substance can act on fifty times more hemoglobin than could be the case were the reaction a simple molecular one. It is evident, therefore, that the aminophenol must have a catalyticlike action, being, alternately, oxidized and again reduced.

Now, if we conceive of the bacteria acting in a similar way, the observations in respect to the presence or absence of oxygen become explicable. If oxygen is in excess, the preliminary reduction of the oxyhemoglobin is difficult, and the reaction is delayed. If no free oxygen is present, the oxidation of the hemoglobin is impossible, and no reaction whatever occurs. If, however, the oxygen is first removed and then, after mixing the bacteria and hemoglobin, free oxygen is added in excess, the reaction occurs more rapidly than when the oxygen had not previously been removed.

If we now interpret the phenomenon of the formation of methemoglobin by pneumococci in the light of these observations, it seems not unlikely that the formation of methemoglobin occurs in the neighborhood of pneumococci because of a modification of oxidation and reduction processes in the medium immediately surrounding the bacterial cells. This change, however, must be a specific one in the case of pneumococci; otherwise all living microorganisms would cause this reaction, which is not the case.

It is possible that the study of this reaction may be of importance, not only as an explanation of the mode of formation of methemoglobin by pneumococci (since in the disease process this actual reaction may play only a minor role), but because it suggests a possible explanation of the toxic action of pneumococci, and of other bacteria as well, on tissue cells. If pneumococci may cause this change in red blood cells merely by contact, by changing oxidation processes in the medium immediately in contact with the living bacterial bodies, it is quite conceivable that in a similar way they may cause other changes, equally important, in other tissue cells with which they are only in contact. Since in this reaction no soluble active substance is present in the fluid after removal of the bacteria, it is quite possible that pneumococci may produce their effects, not by the production of soluble poisons, which may be isolated, but by causing certain changes in their immediate neighborhood which are harmful to the cells with which they are in contact.

To apply this theory to actual conditions in pneumonia, it is necessary to assume a widespread distribution of the organisms throughout the body. It is possible that in all cases and in all stages of pneumonia a few organisms escape into the blood and are distributed throughout the body, but in the majority of cases the presence of bacteria in the blood is difficult to detect by cultural methods. In

the more severe types of the disease, however, and practically always before a fatal termination, a widespread distribution of the bacteria occurs, and it is quite possible that under these conditions the symptoms might result from the local action of the bacteria on all the body tissues. It is conceivable that before general infection occurs, the entire specific action of the pneumococci is on the tissues in the lung or in the local lesion. The general symptoms may then be entirely nonspecific in character and differ in no way from those occurring when a similar local lesion is induced by any cause, even by a nonspecific chemical or other irritant.

It must be remembered that, in offering this possible explanation of the toxic action of pneumococci, I have been necessary to reason largely from analogy. We have still little direct evidence, and it must be admitted that the exact nature of the intoxication in pneumonia is still obscure. Our studies have only brought to light certain facts which I have presented. Only further studies can show whether the possible theoretical deductions I have made from these facts are or are not of value in explaining the phenomena.

(To be concluded.)

THE PSYCHICAL ASPECT OF SYPHILIS.

*In the Light of Modern Syphilology and of
Common Sense.*

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New York.

Infection with syphilis does not necessarily involve much bodily suffering. The comparatively rare malignant syphilis is liable to cause great distress; among the earlier complications iritis is the most painful and grave; acute throat and mouth affections and periostitis, usually rapidly yielding to treatment, cause temporary trouble. Among the tertiary manifestations, those of the skin and of the mucous membranes, also some of the bones, always depending for their importance on their location, may persist for long periods without severe subjective symptoms, also affections of important internal organs, with the exception of those of the nervous system, may exist without apparently grave consequences. Yet a great majority of syphilitics can be said to run through the entire course of the disease without any more than passing pains or functional disturbances. More or less moral and mental suffering, however, is the experience of the greater number of those conscious of their infection with syphilis, usually proportionate to the previous development of their moral and mental education and to their conception of the disease itself. But this I do not mean, and do not propose to consider the exaggerated mental condition which we call syphilophobia, but the shock from the discovery of infection with syphilis which many features combine to render rather severe. Taking conditions as they generally existed until a few years ago, most people had either no knowledge of syphilis at all or a very vague idea of its nature, mostly derived from unreliable, usually exaggerated, hearsay which filled them with terrible fear and horror. Finding themselves suddenly within the power of such a

dreaded enemy, the victims are liable to become entirely unnerved and often are almost in despair. The prospect of a protracted sickness with the incidental expense, the danger of infecting others, the responsibility for the avoidance of opportunities for this infection, the necessity of keeping the infection concealed on account of business and often the even more important family relations, the constant fear of possible exposure through the symptoms of the disease, the enforced giving up of some cherished habits and associations, and similar features create a situation the difficulties of which seem almost insurmountable and overwhelming to the unfortunate victim. Under such circumstances I have heard talk of suicide more than once, but fortunately I cannot think of any case in which I did not succeed in quieting down the excitement, by teaching the patient to look upon the unavoidable consequences of the infection in a more philosophical way and to prepare himself resolutely and energetically to take up the fight against a disease in which we can count upon the effects of our treatment almost with the certainty of a physiological experiment. Unfortunately this will not be our experience in every case, but rather with individuals belonging to a higher stage of civilization; generally the first impressions of the infection will manifest themselves in various degrees and shapes among the various classes, until within the lowest strata of society you meet with a brute indifference, though rarely without a vague fear or terror of some danger impending from the insidious foe.

Where you succeed in establishing between physician and patient that relation where the former assumes a position somewhat higher than that of a dispenser of treatment, the mental condition of the latter will soon improve. Were you allowed, as in some other diseases, tuberculosis, for example, to refer your patient to other people who had to take up the same struggle and have come through with their health fully restored, if you could show them your former patients apparently in full health, successfully filling responsible positions in business and public service, with healthy wives and children, and able to enjoy life as much as others, what a heavy load you might often take from their mind. Still, while going through the different phases of treatment without the occurrence of relapses and seeing but slight reminiscences of the infection, the patient's mind will gradually assume a less black and dismal view of the disease, although he will approach you with various questions, like these: Can I ever be cured? May I ever get married? Can I have healthy children? etc., questions which naturally may receive quite different answers according to the viewpoint and experience of the physician. The first of these questions I personally have rather avoided answering directly, believing that, as in other infectious diseases, the human body possesses or is able to develop means to combat the infectious agent and gradually to get rid of it, in the particular case of syphilis greatly assisted by specific treatment. I advised my patients, therefore, that they must conscientiously and with sufficient perseverance follow a methodical treatment, conduct a reasonable mode of living, embracing in the main nothing that is not advisable for any per-

son wishing to preserve good health; avoid as much as possible too exacting occupations, night work, worry and particularly excesses in some habits like the use of intoxicating drinks, tobacco, etc., which are more liable to produce disastrous results in syphilitics than in others. Under such conditions they had an excellent chance to eliminate the infectious organisms from the system and to enjoy good health and functional ability in the same degree as other people. They were frankly told, however, that no absolute assurance could be given that they might not experience the return of some manifestation, but that the so called tertiary symptoms rarely developed so suddenly that they could not be recognized in time to be subject successfully to energetic, preferably mercurial treatment (*Journal A. M. A.*, December 5, 1908). In spite of the denial of an absolute cure, it was possible to free the patient of most of the dire visions which had haunted him, and to keep up a certain peace of mind. Later, when the conditions seemed to justify final suspension of treatment, and after another period of not less than a year had passed without a recurrence of symptoms, the patient would have almost entirely overcome his terror and looked with more confidence into the future, although still observing with suspicion the slightest irregularity, particularly any blemish on the skin, and sometimes seeking the physician's office after the most trivial occurrences. I feel justified in believing that a number of syphilitics actually began to show a great improvement in their general health soon after their infection, because they were willing to give up some bad habits which formerly they had not considered of much importance, and consented to submit their way of living to the rules of hygiene and common sense. As to marriage, I have advised some patients not to marry, others I have not interfered with in their purpose to remain unmarried, while again in other cases, where married life seemed to promise more favorable conditions for the conservation of the patient's health without danger to the family, I have rather encouraged marriage, and usually nothing has occurred to make me repent my decision. Not uncommonly another mental storm would agitate the patient's mind when the time for the birth of the first child approached, and great would be the relief when the happy father reported that the baby was perfectly healthy and free from blemish. If nothing untoward occurred and no occasion for further treatment had been met with, patients began to feel more and more assured of their recovery, ceased to worry, and managed to forget their syphilis unless some symptom in the children, particularly some skin lesion, or some unaccountable personal experience temporarily revived the old nightmare. Also, when an unfavorable event occurred in the condition of some other person with whose medical history, authentic or not, they had become acquainted, the old fear and suspicion would bring them back to their confidant. I have not infrequently found that patients who had been once infected with syphilis, on consulting specialists for local conditions of the throat or of other organs, were assured that their ailment had absolutely no relation to syphilis, nevertheless medicine was prescribed, usually iodide of potassium,

with the remark that the medicine was not really necessary, but could do no harm. But it frequently did harm: one must consider that the interpolation of some treatment, however trivial, into a long period of freedom from symptoms and treatment, must impair or destroy that feeling of security which the patient had acquired and, for the time being at least, create the idea that, if he had not received that treatment, he probably would have seen symptoms. It is very difficult at times to bring back the patient to his previous condition of confidence and security. Under any circumstances as long as we could not give an absolute assurance that no symptoms were ever to appear, some uncertainty remained, and, as I have stated before (*Morrow's System*, II, 661 *et sequentia*, 1893) "this uncertainty formed the most embarrassing and depressing feature of syphilis; owing to our imperfect knowledge of the real nature of the disease, this uncertainty is its curse and will remain so until we possess some means to determine without any doubt the presence or absence from the human body of the syphilitic virus—whatever that may be—and of its derivatives." We had therefore to recognize the influence on the mind of the patients and to reckon with it in their management. But now, when we are confronted with the important changes that within the last years have taken place in the entire atmosphere of syphilis, social as well as scientific, it seems not only justified but worth while to consider the influence of these changes upon this psychical aspect of syphilis.

Socially, the veil of secrecy which short sightedness, misled judgment, and prudery had long held over the so called venereal diseases, particularly syphilis, has been lifted, largely through the influence of societies like our American Society of Sanitary and Moral Prophylaxis under the leadership of Prince A. Morrow, when the increasing danger to the community was at last realized. To what extremes this publicity has gone, need not be considered here; the single individual infected with syphilis has profited by it so far as he has been enabled to acquire knowledge of the disease and its consequences. Truly syphilis is bad enough as it really shows itself and has to be taken seriously under all circumstances, but at present the tendency is greatly to exaggerate its direct and indirect consequences and to paint it in the darkest possible colors, without mentioning or giving prominence to the redeeming features, principally to the fact that syphilis more than most other infectious diseases is amenable to specific treatment and judicious management. This exaggeration in particular refers to the effect on the progeny of syphilitics and even more to affections of the central nervous organs including tabes and paresis. From many publications one might almost come to the conclusion that the large majority of those infected with syphilis were doomed to become tabetics or paretics. Still, at a meeting of the American Society of Sanitary and Moral Prophylaxis, during the discussion of papers on syphilis of the nervous system and syphilis and insanity, a noted neurologist, Dr. L. Pierce Clark, felt justified in making the statement (*Social Diseases*, IV, p. 173, October, 1913): "I believe we must be careful not to overstate the facts in regard

to the evil influences attributed to syphilis. With this view in mind I wish to state that a very small number of syphilitics become paretic, a much larger number do not develop this condition." Admitting a strong connection of syphilis with idiocy, he continues: "While arteriosclerosis is a most frequent accompaniment or sequence of syphilis, we must remember that the reverse is by no means true. A very infinitesimal number of arteriosclerotics are probably syphilitic." This remark, I believe, may also be applied to endarteritis, endocarditis, and perhaps also to aneurysma aortae. Regarding tabes and paresis, the fact is usually ignored that as a rule syphilis alone does not produce these conditions, but only in association with causes mostly dependent on modern civilization and its demands on the mind and body, causes which formerly were looked upon as primary and essential, but now only as secondary. It would be more humane and practical to emphasize rather the therapeutic possibilities and to insist more forcibly upon the opening of more hospitals.

As a matter of fact, except for the better information, the syphilitic does not derive much comfort from the greater publicity. Although it is more generally acknowledged that the disease may be and quite frequently is acquired innocently, the single victim will not always find ready credence for his statements, and he will be feared, avoided, and excluded from many opportunities wherever his infection is known. In some instances he will be relieved of the necessity of secrecy, particularly in the family, and become the recipient of some sympathy and compassion, but as a rule the innocently infected patient will see sufficient reason to keep his own counsel just as other syphilitics have to find consolation principally in the sympathetic reassurance of the trusted physician.

The scientific discoveries of the last decade in the field of syphilis are of much greater importance than the changes of public opinion; the demonstration of *Spirochæta pallida* as the infectious agent, the application of a certain serum reaction to the diagnosis, and of salvarsan to the therapeutics of syphilis. While studying the effects of these discoveries upon the psychical features of syphilis, I was much interested to find that Dr. I. N. Bloom, of Louisville, Ky., had similarly given attention to the clinical aspect of the disease (*Urological and Cutaneous Review*, May, 1914), in a paper to which I shall refer later.

The most valuable fruit of the demonstration of the spirochete is the possibility of early diagnosis and consequently of immediate treatment before the appearance of a positive Wassermann reaction, with the incidental promise of aborting the disease, or at least of considerable shortening of the periods of activity and treatment. The secondary manifestations, as a rule, are characteristic enough in their clinical features so that the demonstration of the microbes will rarely be required, and in the tertiary forms the small number usually present in the lesions renders the search for them of doubtful value. Of particular interest has been the discovery of spirochetes in the nervous centres in paretics and tabetics, eliminating parasymphilitic affections, at least from the etiological standpoint, while they still remain a class by themselves, on account of

the anatomical changes in the tissues. Altogether our knowledge of the spirochete or treponema and its life history is still rather small and we do not know whether and how far the natural tendency of syphilis to appear in several successive attacks of various intensity depends on these features. It is probable that investigations now going on may clear up many important points, particularly the development of strains of different strength and different affinity for tissues, but so far the results have not reached beyond the stage of hypothesis.

The attempt properly to value the influence upon the psychical aspect of syphilis of the complement fixation tests of the serum of the patient and of the Wassermann test, is a complicated problem. At first we were taught that a positive reaction indicated that at one time during its existence the body of the individual had become infected with the active agent of syphilis. While not explicitly stated, it was left to surmise that the absence of a positive reaction indicated the absence of syphilitic infection. Naturally our hopes reached high and there seemed to exist good reason for jubilation that at last we should be able to give a clean bill of health to our patients. Unfortunately these hopes have by no means been fully realized, and while under certain circumstances and under consideration of various other factors, principally the character of past and present symptoms of the disease, a continuous negative serum reaction renders it highly probable that a definite cure has been effected, the proof is not absolute. An existing lues does not always react positively; experience gained from an enormous number of single tests in cases that have been known to be infected without doubt, shows that, during the so called second stage, usually 100 per cent. of positive reactions are obtained; in the later stages, the tertiary and latent ones, only from fifty to sixty per cent. are positive. Since treated and untreated or insufficiently treated cases are mostly not separated, it can reasonably be assumed that among the patients who reach the later stages, a certain number have really been cured. However, if the positive serum reaction has to be looked upon as a symptom of syphilitic infection, as acknowledged by numerous authors, we cannot be absolutely sure that even after years it may not appear again just as we see other symptoms reappear after periods of ten years and longer, of freedom from all manifestations in patients who had not been treated at all or insufficiently. It seems to be of less importance that in a number of cases, 3.6 per cent. according to Dr. M. Wolff Stettin (*Urological and Cutaneous Review, Technical Supplement*, October, 1913), the test remains inconclusive owing to uncertain results or to autoinhibition, also that in some instances the Wassermann appears negative in the very presence of unmistakable secondary and tertiary manifestations of the skin, the mucous membranes, or other tissue. Such exemptions rather tend to confirm the rule. But some authors, among them those who have had extensive personal experience with the examination of serum, have directly stated that a negative serum reaction is without significance, so that we cannot conscientiously acknowledge a negative reaction as absolute proof of a cure.

With regard to the positive phase of the complement fixation test, we may indeed accept it as specific, as a sure proof of the presence in the body of the infectious agent of syphilis. The few conditions in which a positive reaction has been obtained with more or less regularity, like scarlatina, leprosy, and others, ordinarily can easily be distinguished from syphilis by the clinical symptoms, either at once or after some observation. However, some diversity of opinion exists about the various gradations of the reaction. Bloom (*loc. citato*) says: "To me, with reports received from all over the world, that more than a million complement fixation tests have been reported, the interpretation of a Wassermann test is still a matter of speculation. Assuming that four plus represents complete saturation with no hemolysis, and that one plus represents up to seventy-five per cent. hemolysis, and that plus-minus represents something less than complete hemolysis, what significance is to be placed upon a one plus or, a plus-minus clinically?" Jessner (*Haut- und Geschlechtskrankheiten*, II, 129, 1913) states: "It is not admissible to draw conclusions from the different intensity of the reaction upon the different degrees of intensity of the disease. Primarily it is not possible so far to fix the different grades of the reaction with surety, and secondly, it is questionable how far the intensity of the reaction and that of the state of infection correspond." From other sides protest has been made against all classification of the degree of plus or minus, with the demand that the report give either a straight plus or a straight minus. However, for the present the various grades of plus are usually reported.

As a means for diagnosis, the serum test is not available during the earliest stages of the infection; usually it is found negative during the first four or five weeks, that is, as long as the spirochetes have not reached the general circulation and therefore have not caused the formation of antibodies, so that during this period, beside the clinical symptoms, the demonstration of the spirochetes is alone decisive for the diagnosis and for the chances of a successful abortive treatment. As soon as the positive reaction appears these chances become uncertain, but, particularly when the local symptoms are not convincing or when the secondary symptoms are delayed, the positive reaction may remove all doubts about the infection and so protect the patient against the cruel situation of being forever left in doubt whether he really has syphilis or not.

After the diagnosis has been made, the Wassermann allows to a certain extent, always, however, with consideration of the clinical manifestations, control of the progress of the disease and the treatment. It is now more or less generally advised and practised as a routine measure, to have the blood examined immediately, whether characteristic symptoms are present or not, and also from time to time during the progress of treatment. However, on sober reflection, one may well come to the conclusion that the serum test is to no practical purpose in the presence of characteristic secondary and tertiary symptoms, which ever since syphilis became generally known over 400 years ago, have served well for the recognition of the disease by a practised eye, particularly if sufficiently experienced in

the diagnosis of skin diseases. This is of importance, too, for the reason that not every symptom that develops on the syphilitic individual is necessarily due to the syphilis. Still Bloom correctly says (*loc. citato*, p. 233): "It is remarkable how frequently otherwise intelligent physicians, knowing that a patient has syphilis, will conclude that every other lesion which may develop must be of syphilitic origin. Eczema in a man who has had syphilis is assumed to be syphilitic, and even urticaria is supposed to be evidence of an old syphilis, provided the patient had ever had the disease."

Objection may also be justly raised against the routine of frequently repeated serum examinations during the period of active treatment, except in cases where particularly favorable circumstances give promise of the success of abortive treatment. Otherwise it is generally admitted that, whether symptoms appear or not, a methodical treatment, following as far as possible a definite plan, has to be continued over a more or less protracted period, no matter how the interposed serum examinations turn out. Only after sufficient treatment has been given under the original plan, and a few months have passed without treatment, the Wassermann becomes of real value and its application fully justified. This protest against unnecessary preliminary and intermediate serum examinations, is in part raised on account of the considerable additional expense. As has been stated, the financial question plays an important part in the creation of unrest and worry for the syphilitic, particularly among the numerous patients that belong to the so called middle class, who, while not enjoying large incomes, refuse to accept the gratuitous services of public and charitable institutions. Furthermore, in a certain class of patients, in whom the presence of the disease and the quietly continued treatment exert already a sufficient strain on the mind, these repeated examinations, with the unavoidable suspense while waiting for the report and the disappointment and worry in case of an unfavorable result, are liable needlessly to increase the mental suffering. In the end, as long as the patient is conscientiously attending to his treatment, the less bothered he is with reminders of his trouble, the better for his state of mind. We must also consider that, while it is urged over and over again that the Wassermann and other serum tests are of value only if made by experienced men in well equipped laboratories, the proper facilities are not everywhere at the disposal of the practitioner, who nevertheless has to attend to his patients. Insisting upon the control by the Wassermann under all circumstances, would insinuate that no physician was justified in treating syphilitics without it, or perhaps committed a crime if he did so. The patient might then lose confidence, despair of being cured at home and thereby become a victim of more mental suffering.

It is now more or less generally understood and insisted upon by many writers, that a positive reaction *eo ipso* means immediate or continued treatment until the reaction becomes negative. Where manifestations are present, we shall not be long in doubt that the treatment has to be persevered in until the manifestations have disappeared. But after this has been accomplished, or in the absence

of any symptoms, the question arises, how long these therapeutic efforts are reasonably to be extended. Neisser early called attention to the fact that, principally in the later stages of the infection, it is not always possible to effect a change of the reaction to negative, particularly where the patients have not received efficient treatment during the early period of the disease or, at the time of the examination, have not had treatment for some time. This experience has been entirely ignored by some writers and much minimized by others. Still it is obvious that such continued futile efforts are likely to have an alarming and depressing influence on the patient's mind and possibly on his health. It seems therefore very apt and timely for Craig and Collins (Four Years' Experience with Salvarsan and Neosalvarsan in the Treatment of Nervous Diseases Due to Syphilis, *Journal A. M. A.*, June 20, 1914) to say: "In our enthusiasm in attempting to render the Wassermann reaction negative, we must not forget that we are treating the patient, not the condition of his serum." This warning applies with particular strength to cases of latent syphilis that present a very difficult problem. This has been appropriately touched upon by Bloom (*loc. citato*, pp. 226, 231): "What treatment, and how long continued, is to be given to a patient who went through a more or less thorough treatment twenty-five years ago, who married after five or eight years and became the father of a healthy family of children, and who finally presents himself for a Wassermann test, but with no clinical symptoms of syphilis manifestations since his discharge, and in whom we find a single plus? Does the one plus indicate somewhere in the system an active syphilis, which may manifest itself clinically in the future, and does the condition warrant a course of treatment carried out sufficiently long, and of a sufficiently severe character to produce a negative Wassermann; or does it denote encapsulated and harmless degenerated spirochætae just capable of generating antibodies and no more?" I shall let a recent experience in practice give a practical answer to this question:

CASE. Mr. C. K., aged forty-seven years, bookkeeper. He acquired syphilis twenty-three years ago and was treated with inunctions, partly under the care of the late Dr. R. W. Taylor, partly in Aix-la-chapelle by the late Doctor Schuster. He never afterward had any symptoms of syphilis. Had been married eighteen years and had two healthy children. He himself had been enjoying good health until about eighteen months ago, when he began to feel somewhat heavy in the abdomen, and when he accidentally heard that his mother had died of cancer of the stomach, he became greatly alarmed. By some friend he was sent to a hospital for a thorough examination, which did not reveal any abnormal conditions. Finally, inquiry was made about syphilis and he admitted the old infection. The Wassermann test gave three plus. He was immediately advised that he was in the greatest danger of getting tabes or paresis and would have to undergo energetic treatment. Last fall he took two intravenous salvarsan injections and fifteen injections of mercury salicylate. Another Wassermann, taken this spring, resulted in two plus and another course of salvarsan and mercury treatment was immediately ordered, with the prospect of reducing the reaction by another one plus. At this stage the patient asked for my advice. Earning but a moderate salary, somewhat reduced from formerly, he felt the expenses of treatment, etc., quite severely. He had no trouble any longer with the stomach, but since he had been told of the threatening nervous diseases, he began to look for and

Personally I had been very well satisfied with the results of mercurial treatment previous to the appearance of salvarsan, owing probably to the fact that since 1886 I had begun to use intramuscular injections of insoluble salts, principally the salicylate and calomel, which now are generally recognized as the most effective applications of mercury, and to adopt them as the method of choice. Like Bloom (*loco citato*, p. 226) I have received reports of a negative reaction in a number of cases as late as twenty-five years after discontinuing treatment. In patients with tertiary symptoms I usually have observed the prompt disappearance of grave manifestations of the skin, the upper air passages, bones, etc., after energetic treatment with mercury. In cases which had never before been treated with mercury, or at least not for a number of years, I have frequently been surprised by the almost magical effect of the first intramuscular injections of insoluble salts, similar to what we see after salvarsan. Under these circumstances I took at first a rather conservative view of salvarsan, but I am now ready to acknowledge that we are indebted to that remedy for results for which we formerly had tried in vain, and which justify a more favorable view of the curability of syphilis and brighten its psychical aspect. The possibility of aborting the infection during its earliest stage, that is, before the spirochetes have reached the general circulation and the serum reaction has become positive, has now been established by so large a number of observations that one must waive the objection that time has not yet been sufficiently long to eliminate the possibility of the return of symptoms. Next in importance is the remarkable effect which we generally see from salvarsan in cases of malignant syphilis in which we formerly were almost helpless, also in those comparatively rare instances in which mercury and iodides are not tolerated by the patient, or when after a while these remedies cease to exert their beneficial influence on the disease. This change in the prospect of these most embarrassing cases would alone be sufficient to hail salvarsan with praise and gratitude. As a further advantage must be mentioned the results of salvarsan in anemia and cachexia in syphilis; it is astonishing how rapidly they gain in weight and in general condition, subjective as well as objective. In tabes and paresis the more recent methods of salvarsan treatment, though still on trial, promise improvement in the symptoms and arrest of the process. The advantages of salvarsan are less conspicuous in the secondary and tertiary stages of what we might call normal cases, in fact the majority of syphilologists are in favor of its combination with mercury in injections of insoluble preparations or inunctions. In some cases all kinds of manifestations are favorably affected, particularly those of the mucous membranes, while others show little improvement or none. The induration of the primary lesions, enlarged lymph nodes, some syphilids, particularly papular ones and other symptoms often resist salvarsan, but quickly yield to mercury. With regard to affections of the sense organs, eyes, ears, larynx, and some of the nerves, the opinions of specialists are widely different, with a decided preference for the older treatment with

mercury and iodine. Some tertiary lesions of the skin, particularly the scaly syphilide of the palm and leucoplakia, which are among the most obstinate conditions, improve wonderfully under salvarsan, while in the majority of cases the combination of salvarsan and mercury seems preferable.

In spite of all these advantages, it must not be overlooked that, even with the most charitable interpretation of the accidents that accompany, and the deaths that follow salvarsan, the fact remains that it is not free from danger and that its application must be attended with the utmost care. This matter has been threshed out so, that it is sufficient to mention it, and to declare that, in spite of these drawbacks, salvarsan must not be abandoned. On the other side, excepting the chances for abortion in the early stage which unfortunately offer themselves in a limited number of cases only, salvarsan is by no means infallible if applied alone and is oftener followed by relapses than mercury. Further, in consideration of the long and by no means unsatisfactory experience with mercurial treatment extending into the present century, there is no reason why even now patients should not be treated with mercury, or with mercury and iodine, if in an energetic way, as long as the disease is favorably affected, and recourse to salvarsan be taken only whenever the old method fails. Some writers have been and are insisting that the salvation in syphilis lies in salvarsan alone, some going so far as to declare it reprehensible or even criminal to treat a syphilitic without salvarsan. They ought to remember that on account of organic trouble or general conditions of health, a not inconsiderable number of patients have to forego salvarsan treatment entirely or at least its intravenous administration, that others are prevented by circumstances either financial or social, others again because they live too far from a competent physician; they ought to understand that not every physician is in the position to satisfy all the requirements. If these assertions of the unique healing power of salvarsan were recognized as well supported, all those patients would be absolutely deprived of hope for a cure, greatly to the detriment of their mental state. And what will these physicians do, how will they comfort their patients if the supply of salvarsan runs out, as is not unlikely under present conditions?

SUMMARY.

1. Syphilis is more or less liable to disturb the mental equilibrium of those affected.
2. The discovery of *Spirochæta pallida* as the infectious agent of syphilis, the introduction of salvarsan in the therapeutics, and of the serum examination in the treatment of syphilis, have rendered prognosis much more favorable than formerly.
3. In the present state of our knowledge a negative serum reaction, under certain conditions, renders the cure of the patient highly probable, but not absolutely sure.
4. The serum test under certain conditions, particularly in so called latent syphilis, is likely to do more harm than good, and its application ought to be put under the rule of common sense.
5. As long as uncertainty exists with regard to a

definite cure of syphilis, the psychical aspect has to be taken into account, and the patient will have to rely, not only on the laboratory, but also on the confidential advice and the sympathy of a physician, who has closely watched the clinical symptoms and will also bear in mind the mental state.

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APPENDICITIS UNDER FIELD SERVICE CONDITIONS.

*A Report of Fifty-two Operations.**

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This series of operations for appendicitis possess peculiar interest by reason of the conditions under which they were done, i. e., field service conditions with United States Army troops. All of the patients were operated on in a field hospital, and more than three fourths were operated on in an extemporized operating room, thirty-eight in camp at Texas City, the remaining fourteen cases in a building temporarily occupied as a hospital by United States Army Field Hospital No. 3, at Vera Cruz, Mexico.

To begin with, the subjects were mostly young, healthy soldiers, of an average age of twenty-five years. They were transferred to the field hospital by the surgeons of their regiments with a tentative diagnosis, usually within twelve hours of their having been taken sick.

At the field hospital we were ready to operate day or night, within an hour after a definite diagnosis was made. The teaching of that great teacher and operator, Deaver, that "delay means disaster," was kept constantly in mind. At the field hospital five medical officers were on duty. Consultants were at hand, and interference by solicitous relatives and friends was not a cause for delay.

A careful examination with a leucocyte count was made in each case. A diagnosis having been made, the patient was placed in bed in the Fowler position even for the hour's time while preparation was made for operation. The simplification of modern surgical asepsis was a big factor as a time saver. The area for operation was given a dry shave, and painted with one half strength U. S. P. tincture of iodine, half an hour before operation; this was followed by a thorough painting of the area with the same strength solution immediately preceding operation.

Sterile rubber gloves were worn by operator and assistants, the hands having previously been scrubbed up to the elbows with a scrubbing brush, using tincture of green soap in warm water, after which the hands and forearms were thoroughly rinsed in alcohol. The basins were sterilized by scrubbing with sapollo and water, rinsing the basins out with alcohol, and burning the residue. Dressings and instruments were sterilized in the usual way, the former by steam, in an Arnold sterilizer, the latter by boiling in a fish kettle. In the field, at Texas City, our operative work was done in an operating shack of frame structure, built by our

own labor at a cost of only sixty-five dollars. This improvised operating room was well lighted, and being in a warm climate was well ventilated. Broad windows extending around it were screened on the outside with wire mesh to keep out flies and other insects. Inside the windows were well fitting frames covered with cheesecloth to filter the air of dust. Dust storms are of frequent occurrence with the well known Texas northers.

In this series of cases forty-four were acute, and eight were chronic in type. Of the acute cases fifteen were of the catarrhal variety, while twenty-nine were suppurative. Eight of the suppurative were gangrenous, and three had perforations with symptoms of a commencing general peritonitis.

The appendix was found and removed at the primary operation in every case but one. In this case it was considered that "a live man with an appendix was better than a dead man without an appendix." An abscess had formed, pointing toward the median line. On making a median incision and using an exploratory needle, no difficulty was experienced in locating the abscess cavity, but on incising what appeared to be the abscess wall, I was amazed to find that the cecum being mobile had become plastered against the parietal peritoneum, and the opening was into the cecum instead of the abscess cavity. The opening in the cecum was closed and drainage of the abscess cavity secured at another point of the incision. A second operation in this case was performed a few weeks later through a gridiron incision, when what remained of a previously suppurating appendix was removed.

Properly to diagnose these cases early, as most of them came to us early in the disease, was not easy, and in one case we were very strongly of the opinion that the diagnosis of acute appendicitis made by the regimental surgeon, was wrong. The patient got out of the ambulance and walked into the operating room, lay down on the operating table, and received a thorough examination by three medical officers with negative results as to signs of appendicitis. A subnormal temperature of one degree F., however, caused him to be placed under observation with no food or drink. Three hours later he was writhing with pain, the abdomen distended and tight as a drum. An immediate operation disclosed a perforated appendix.

There has always been a doubt in my mind as to the ability of a surgeon to disclose enlargement of an appendix or its location by palpation through the abdominal wall. In one case of this series, however, the subject having a thin abdomen and a very much hardened and enlarged appendix lying directly against the abdominal wall, the operation disclosed beyond a doubt that it was the appendix that was felt on palpation rolling beneath the fingers.

The point which I consider of most value in determining, previous to operation, the exact location of the appendix, is to permit the patient with his own fingers to locate the point of greatest tenderness, then by gentle pressure with the finger tips this point of tenderness is verified by the surgeon. With an incision corresponding to this spot of greatest tenderness, the appendix can be found with the least difficulty.

In early appendicitis in the robust soldier, pain,

*Published with the approval of the office of the Surgeon General.

tenderness, rigidity of the right rectus, a slight elevation of temperature, 99° to 100° F., and a leucocytosis, were, as a rule, the important signs and symptoms upon which the diagnosis was based. However, in several of these cases pain, located in the right iliac region and tenderness on deep pressure, were the only symptoms in evidence of the disease. As pain is a subjective symptom, and one which the usually healthy soldier is disinclined to admit, the personal equation must be very carefully inquired into and considered.

The postoperative care of these patients operated on in the field, and subsequently cared for in convalescence under canvas, was along the same lines as in modern city hospitals and as advocated by Murphy and Ochsner. In addition to this plan of treatment, in cases of commencing peritonitis following appendicitis, I wish to give my indorsement of the use of eserine salicylate, one fortieth of one grain hypodermically, repeated in twelve hours, if necessary, where there are symptoms of intestinal stasis, with evidence of mechanical pressure from gas. Usually within twenty-four hours from the time of administration of the first injection of eserine, a movement of the bowels occurs, causing great relief of the discomfort produced by pressure. For relief from persistent postoperative nausea and vomiting, nothing proved so efficacious as washing out of the stomach with the aid of a stomach tube, using a weak solution of sodium bicarbonate.

Fifty of these cases occurred in persons in the military service, and all made complete recoveries. Mention should also be made of the fact, that although iodine one half strength was used to disinfect the skin, and no particular measures were taken to prevent the bowel from coming in contact with the iodine painted skin during operation, no patient returned to the hospital with signs of intestinal adhesions following operation.

In contrast with these fifty officers and soldiers in the service, with early operations and good recoveries, are those of two civilians, operated on at Vera Cruz, whose cases were late cases, i. e., over forty-eight hours.

CASE I. Male, aged thirty years, destitute, applied to the hospital for admission as a last resort, having suffered from symptoms of acute appendicitis for two days. After a good night's rest, with a hot water bag over the appendix region, he appeared to be much improved, and it was thought an operation might be forestalled, and a further delay for twenty-four hours was decided on. Instead of a change for the better, his condition got worse. An operation was done just as soon as it was evident that a recovery could not take place without it. The operation disclosed an appendix gangrenous to its base, and its walls so thin that it was on the verge of rupturing. Chloroform anesthesia was used, lasting about an hour. The patient came out of the anesthetic in good shape, but was unable to retain liquid given by mouth. At the end of forty-eight hours a low grade toxemia developed, with a mild grade of delirium, becoming active when the patient was disturbed. He died fifty-six hours after operation. The post mortem findings were negative, excepting for a profound jaundice which was generally distributed. No signs of peritonitis existed, and the wound itself was clean. There was doubt as to whether the disease or chloroform caused death.

CASE II. Civilian, aged thirty-six years, general condition good. History of appendicitis, forty-eight hours' duration. This patient was a Christian scientist, but knew when he had pain. After examination and consultation with his attending physician, I advised an operation. The patient wanted to know if the operation could not be delayed another day. I informed him that he was a good risk then,

and I did not know what he would be in the next twenty-four hours, that I should like to be in the position of a life insurance agent, and refuse him when he was considered not a good risk. The result was an immediate operation, the findings a gangrenous appendix, from which the patient made a good recovery.

Deaver says, "cut well, sew well, and your patients get well." For appendicitis cases, I should be inclined to change Doctor Deaver's expression, which in practice he follows, to "go in quickly, get out quickly, and your patients will get well quickly."

The following points are favorable to early operation for appendicitis in the military service.

1. The patient is, as a rule, a young able bodied soldier.
2. If by reason of any physical disability he is unable to perform his daily duties, he is required to go on sick report.
3. When his name is entered on sick report, he has to be seen by the surgeon. So, if he is taken ill during the night, and delays going on sick report until next morning, not over twelve hours will elapse before his case is investigated.
4. Owing to the discipline he is accustomed to in the military service, when told by a medical officer that he requires an operation, he usually accepts the decision without question.
5. Over solicitous relatives and friends are not present to urge delay.

6. At a field hospital the medical officers live in camp, in tents adjacent to the wards, so consultants and assistants are always on hand.

In the present great European war, the resources of field hospitals are taxed to the limit of their capacity in patching up the slightly wounded, in order to maintain the largest number of rifles on the firing line, so cases of this kind, appendicitis and other major surgical cases, have to be transferred back to the lines of communications, to evacuation and base hospitals, for operation. But in mobilization camps, since the introduction of simplified methods of asepsis, major surgery can be done with practically the same degree of safety in field hospitals, as in the more expensive modern operating rooms in the best city hospitals.

THE PSYCHOLOGY OF WAR.

Why Peoples and Nations Fight.

By WILLIAM LEE HOWARD, M. D.,
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Warfare is as much a part of civilization as any other method by which men and nations struggle for supremacy, cultural or commercial. It is due to the inherent pugnacity of man. It is an innate attribute of man whether he has a village of huts to protect or a city of palaces and cathedrals; whether it is a tribal boundary to hold or a big nation's territory to defend. Whether or not the much to be desired universal peace can be brought about among cultured peoples, is another question. The fact remains that fundamentally the causes for war are the same in civilized nations as in barbarous; conditions of warfare only have changed.

The evolution of social organization has been due to the pugnacity of man. Today we see it operating

more powerfully than at any time in the world's history. Instead of a group of men at war, we see the greater part of the civilized world as a mass of emotional fighters. This amply shows that in spite of religious and ethical movements, peace palaces and rocking chair pacifists, man in nature has not changed from the days of war clubs and war axes.

All that man's laws have accomplished has been to change individual combats to collective ones. When the laws of civilization have stopped personal revenge and taken away the individual's right to resent insult, to protect self and property, we find expensive and unsatisfactory legal procedures taking their places. The honorable warrior has given way to the litigious man and his parasitical shyster.

Have these laws of civilization succeeded in suppressing man's instinct of pugnacity? In some nations they have been partially successful, at the same time weakening these nations. These nations today are second or third class powers because they have been conquered by those whose national and racial pugnacity has not been permitted to weaken.

We think it barbarous, horrible, that savage tribes should attempt to exterminate one another. We send missionaries and punitive expeditions to stop them. What are those nations of churches, missionaries, diplomats, and pacifists doing today—what are those nations trying to do now with their millions of warriors? Exterminate each other. One and all say they will fight to a finish. Barbarous in destruction, savage in blood lust, their frenzy does not differ from the emotional frenzy of the hordes of Attila, nor from the fury which carried the old Teutonic races swarming over the walls of Rome.

Why have we not understood that savage races and civilized man are one and the same? Because we have refused or neglected to take account of his instincts. Those who view or study mankind superficially say that individual or collective pugnacity is only a survival of man's brutal ancestry; that had our social evolution been along universal desire for peace, this instinct would have been eradicated. Possibly, and so would men. For, when timidity, peace at any price feelings supplant controlled pugnacity and righteous indignation, then out go the virile powers of man.

A nation produced from germ plasm whose determinants of pugnacity have been reduced to zero, would soon cease to exist as a source of power or progress. Not only is this true of tribes and nations, but of sects and communities. The socializing influence of pugnacity is well illustrated by Andrew Lang in his *Primal Law*. Merely outlined, it is that the primitive society was a polygamous family consisting of a patriarch, his wives and children. The young males, as they became full grown, were driven out of the community by the patriarch, who was jealous of all possible rivals in his marital privileges. They formed semi-independent bands hanging on the outskirts of the family circle, from which they were jealously excluded. From time to time the young males would be brought by their sex impulse into deadly strife with the patriarch, and, when one of them succeeded in overcoming him, this one took his place and ruled in his stead.

Here we see the primal law of Nature plainly demonstrated. If the young males were weak in their sex instincts, they would be wanting in pugnacity. The old patriarch would soon cease to transmit vigor to his children and this particular tribe would become destroyed or vanquished by one whose young males fought for the young wives of the patriarch. The fierce sexual jealousies of man and his polygamous capacities—still a dominating trait in man—would have been the same as in animals had it not been for the prohibition enforced by the jealousy of the patriarch.

This prohibition was the primal law of man. This was the social factor that brought out the pugnacity of the young males, made them desirous for the young females, and was the beginning of all studied warfare, thus improving the race by producing and keeping up a virile class of men.

In tribes and nations where our false ideas of civilization have been forced and fostered, promiscuous intercourse prevails, disease cripples, pugnacity is weak, there is no fierce protective jealousy, and the ultimate results are tribes and nations sunk to slavery and mental and physical deterioration. The prevalent idea that tribal wars must have eliminated the bravest and boldest men, is erroneous. That it does so today is also not wholly true. The reckless individual without judgment or self control, without common prudence, is eliminated. It is the complaint of the French and English officers in the present war, that they cannot hold back, keep in check, prevent the useless deaths of the reckless men. Many of the best men are killed, of course, but also many who enter the armies today as reckless, imprudent, undisciplined individuals are remade into men of prudence and self control—citizens who will in the future obey authority and aid in upholding it.

But to go back to our primitive ancestors to whom we owe so much. Disregard of the primal law of man meant immediate death unless the youth conquered the patriarch. The men roused to recklessness by a desire and jealousy which submerged sense and self control, were destroyed by the patriarch.

This had a mental effect on the young males left in the tribe. With no less of sexual instinct to cause determination and effort to secure the females, prudence and scheming took the place of ferocious recklessness. Among certain of them, fear, fear of the ruthlessness of the chief or patriarch, brought about another social factor, a weakening of the sex instinct. These men had no powerful and dominating pugnacity to transmit to future generations and so Nature weeded them out of the tribe. Only by fighting, war, could the vigor of the race be transmitted, and, as I have said, when prudence and skill, thought, the making of new killing instruments and devices, dexterity in handling improved weapons, progressed, warriors were born who continued the social evolution of man.

Now control of impulses means a higher social development in man. He took on something of a mental organization. He was not stopped by fear, his sex impulses were not inhibited by timidity or transmitted to him by a pacific ancestor. He was a born fighter, but one who now began to use his brain

to govern his actions. He became self conscious, self confident, but ever motivated by the sex instinct which is objectively demonstrated by controlled and reasoned pugnacity.

Under these natural conditions man and society made great progress. Each chief of tribe or clan became superior to his predecessor. His children and the children of his warriors retained all the primitive instincts of their forbears with an increase of brain stuff. Finally tribes merged into nations with borders and towns to protect and defend, and woe to that nation which had allowed a weakening of pugnacity through sexual excesses or ascetic examples! Do not forget this fact; celibacy, absolute continence from want of desire, congenital or acquired, monkish asceticism, are pathological states—diseased states of mind or body.

What the individual had to do in very early times the State must do today, be able and trained to fight for its rights. If it ignores the laws of the primitive and absolutely necessary instinct—the sexual—in producing and teaching its citizens, it cannot as a nation hold its own among the more intelligent nations of the world. Culture and intelligence do not consist in ignoring primitive forces, in believing we have left them behind in our social evolution, but in boldly studying and utilizing them to the best advantage.

Here is the important point; objective demonstration of the sexual instinct must not be confounded with sensuality; the former is constructive, the latter destructive. By sexual instinct I mean the normal femaleness and maleness—the *désire* for home and children, the striving for physiological morality and health, the disgust for lechery and promiscuity, the ever present watchfulness over family, and the readiness to defend and aid State or community. Sex instinct means the preservation of primitive forces of reproduction so that the race will progress in all possible ways. Normal instinct prevents miscegenation, keeps the race true to its blood or blood of its kind; it means pride of virility, shame of sterility.

Sensuality, so commonly confounded with the healthy state of sexuality, has been the curse of many peoples, the cause of the overthrow of many nations satiated with victories, loot, wealth, and the loss of self control in its citizens. It has destroyed home life, placed the mother below the concubine, made tools of men handled by the courtesans because the pugnacious instinct was weak. Sensuality is the antithesis of sexuality. It is the rioting, the upwelling, the unloosening, the artificial stimulation of perverted instincts; it is the victor over all the decent and progressive forces of Nature.

The conquering nation whose citizens keep under control and in their proper channels the fundamental forces which made them warriors, will be conquerors over the sensuality so dangerous to men and women who have suffered and been deprived of comforts and necessities of life. It takes a very strong man or nation to preserve a moral and mental balance when suffering and deprivation are followed by victory and its acquisition of wealth, power, and luxury.

Herein lie some of the good effects I believe will come of the war. A better self control by men and

women, more active interest in the need of women having something to do and that alongside men in further civilizing the world; a rapid return to the development of the sciences, arts, and industries, and a fuller knowledge of those primal factors which can be utilized in the greater war for the conquest of the real nature of man.

A good war is a national purgative. Its horrors and killings, destruction and misery are the distressing symptoms accompanying and following a nation's convalescence from evil deviations or social decline; self satisfaction and arrogance, for example. Those nations comprising one group or groups of the same racial stock, in which combats or wars have existed for generations, have had developed in the survivors and blood—or rather psychic organizations—those essential conditions of effective cooperation and of the highest forms of social organizations.

Success in war can be obtained only through the perfect and definite organization of a homogeneous people. A nation made up of a heterogeneous people in which the majority are the rejected of various ethnic stocks widely at variance in religion, morals, and education, will fail in any immediate attempt to bind them together for war.

The various conflicts of ethnic groups distinctly different in nature, have resulted, effectively resulted, in developing the moral stamina of man. The more highly developed group conquers, for in the meaning of morality I presuppose a retention of the primitive tendency and sexual instinct to preserve race and country.

The pugnacious instinct makes for stable and efficient organization. Men of culture, men of ignorance, men of wealth, men of poverty; father, son, mother, and sister, all are welded to one cause—the preservation of home and land motivated by the subconscious sex instinct passed on unweakened from their tribal ancestors.

The German race is an example of what I mean. "The Germanic tribes were perhaps more pugnacious and possessed of the military virtues in a higher degree than any other people that has existed before or since. They were the most terrible enemies, as Julius Cæsar found, they never could be subdued because they loved fighting; i. e., because they were innately pugnacious" (William McDougall).

Mr. Kidd, in his *Principles of Western Civilization*, argues strongly that it is the social qualities developed by this process of military selections which enabled the Germans to build up a new civilization on the ruins of the Roman Empire, and to carry on the progress of social organization and of civilization to the point it has now reached.

And remember this pleasing fact among all the horrible ones: the Germans are the one race today in civilization who have preserved the home life and influence, who have striven to be mothers and fathers. Only in the last few years have some of the social evils commenced to coil their slimy way into German domestic life and society. Is this great effort of Germany today due to the subconscious primitive instinct to protect home and race? She may have become land eager, militarism may have bred blood lust, diplomacy may have become over-

ambitious and intolerably arrogant, and outside irritation exaggerated, but back of it I see there lies the primitive pugnacious instinct kept active from tribal days. Whether or not it has reached the breaking point, whether or not this wonderful social organization developed among themselves, will be carried on further to influence the world, is not for me to say.

We cannot avoid the facts of science or history; we cannot prophesy from present and past facts what the future will be when this colossal war is ended. This only can we say; that the spirit of war is born in man through his sex instincts and their many modes of expression. Can we shunt these activities into future bloodless strifes without weakening the pugnacious instinct, absolutely indispensable for race continuance?

This is the question that puzzles the sex psychologist and one who endeavors to understand the primitive forces of Nature and Man.

THE DRUG HABIT AND LEGISLATION.*

By J. B. WOODHULL, M.D.,
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Drug habits, such as are produced by morphine, alcoholic liquors, cocaine, and chloral have all been a serious problem to the states and governments of the world. In the United States, an attempt to solve this problem has been made by the States or counties; in some States by towns, when that is the smallest unit of government. Some hoped to make it still more local by making the unit of government as small as villages, or wards in the cities.

Two quite different and very old methods have stirred the centuries; one is moral suasion as was taught by Christ, the other prohibition as taught by the Jews and later by Mohammed, which can easily be studied in countries where this religion predominates. I shall speak of the value of habit producing drugs to the world and the effort to stop habits by law; how the effort works in regard to the medicinal use, and how it makes it hard for the sick poor, and the physician, by making the price high; finally, of the enactment of laws to prevent the manufacture and raising of the opium poppy. Alcoholic liquor in its different forms has stirred the world as a producer of habits. It seems to me to be the worst of habits to use liquor to excess. Many say the opium habit is the worst.

Mr. S. was a hard drinker; at times he would spend large sums of money; he would drive his horse fast, often breaking his wagon, making it dangerous for people on the street. He would break up the dishes on his supper table and spread fear among his women folks. Ten years ago he commenced taking morphine hypodermically, since which time his neighbors have not been disturbed by his loud talk; he hasn't spent large sums of money; he works every day; he likes his own room when at home, where he reads his paper and likes his own company. The morphine habit is a bad one, but after thirty years of close observation, I cannot see that it compares with a wild "drunk" in

any way. The chloral habit I haven't found as common nor as hard to handle as the last two. Lastly, there is the cocaine habit, which is a bad one. While there are other drugs to which patients may become addicted, the four mentioned are all I care to consider in this paper, and are the cause of hundreds of laws which have been placed on the statute books.

The best things in the world are often the hardest to handle. This is true in medicine. The remedies that are most relied upon and do the most good, are often the ones that are worst used. We do not want to get rid of a thing, but to learn to use it better, not destroy, but learn to respect. Alcohol in its different forms, opium and its alkaloid, morphine, chloral, and cocaine are the most common habit producing drugs. If getting into the habit of taking drugs is to be prevented in a free country, each user must be educated as to the action and effect of the drug, or should let some one prescribe or give it to him. Not only must people be educated as to the proper use of drugs, but to the danger of getting into a habit.

I often hear men say: "The doctor got my wife to use morphine." I have found you can't believe all men. Mrs. B. saw many physicians for pain and sleeplessness, without much benefit; finally, one doctor gave her a hypodermic injection of morphine, which made her feel better for a time. Her husband came to see me and told me his wife's experience. He said: "I am going to buy a hypodermic needle for my wife to use herself." I told him his wife's morphine habit would date from the day he brought the needle home. I told him how his home would be blighted and of the sorrow such a habit would bring. A year passed; he came again to tell me that what I had told him had come very true. His wife was a wreck. The doctor ought not to have told the patient he had given her morphine. No possible good can come from telling your remedies to your patients, nor do the laity receive any benefit from talking over the remedies in their back yards.

Alcoholic preparations, opium in some of its forms, and all the habit producing drugs, are of the greatest importance to our drug list. Mr. A. was hurt in the baggage car, when the train left the track. He was thrown among trunks, and when I saw him it seemed as though death was near. His pulse could not be found at the wrist, his skin was cold and clammy, his lips were blue, and the blood had left the surface of his body. I fed him French brandy undiluted and the benefit could soon be seen; he recovered. Cases might be multiplied as to the value of alcohol. Thirty years have not changed the teaching of Wood, Bartholow, Shoemaker, Pepper, Loomis, Thomson, Hare, and many others, too many to name in this short paper.

Morphine for pain is the best drug we have. Mrs. D. was thrown from a wagon by a runaway horse. When I saw her, she was in great pain in her abdomen, with extreme pallor, cold hands, with every sign of approaching death. I gave her morphine and atropine, repeating doses until pain stopped, at which time the pulse returned and she showed marked improvement in every way.

No drug has taken the place of chloral to pro-

*Read at the twenty-fourth annual session of the New York and New England Association of Railway Surgeons, Hotel Astor, New York, Wednesday, October 21, 1914.

duce sleep. I have found it of great value in some forms of delirium and mental trouble, snatching people from the madhouse and putting them into the regular walks of life.

Cocaine seems to me to be of the least importance of the four mentioned. I once lived near a shop where steel was ground; fast moving emery wheels were used. Often some workman came to my office with small particles of steel or emery thrown into the eye; cocaine was used to make the eye less sensitive. Although I used this treatment in a large number of cases, I have never known of any one getting the habit in this way, and all of these men were under my close observation. I make this statement because a number of surgeons and eye specialists have told me they did not use cocaine because of the danger of a habit. I repeat: "Do not tell your patients the names of your remedies."

Some of my own rules may come in here for the use of habit producing drugs. It seems to me better to give whiskey or brandy in some disguised prescription than to tell your patient to go to a saloon and get a pint; it takes away the dignity of its being a drug or a medicine. If I deem it necessary to use morphine, I limit the period of use to ten days. Mr. A. S. consulted me. He was very much out of shape, much drawn to one side, great pain in one side and back, extending down one leg along the sciatic nerve. He had consulted one of the best surgeons, who had diagnosed a cancerous growth attached to the brim of the pelvis. The day for the operation was set; the day arrived, but before operating, the surgeon made another examination and, not feeling so sure of the first diagnosis, put the operation off to keep the patient under observation. Mr. A. S. consulted me. I advised that for ten days he be kept absolutely free from pain. The treatment was hypodermic injections of morphine in large enough doses and at short enough intervals to stop all pain, the only other treatment being large doses of castor oil every morning, to get a good movement of the bowels every day. The cure was complete, and ten years have passed with no return of pain nor any morphine habit.

What good has come from the methods used to prevent the obtaining these drugs? The number of those who use alcoholic liquors to excess is variously estimated, but I should say in the United States it was about one in forty. Statistics are very unreliable as to the use of liquor sold or drunk. In so called dry States, records say that no liquors are used, yet the express companies and other carriers often show that about as much is brought into these States per capita as into other States. I once had an opportunity to see a lot of liquor destroyed in a city where it was said none was kept and none drunk. When the barrels were broken open by men with axes, it ran the leaders full. Medical observation in these places seems to show that deaths are about as numerous where alcohol is a factor in the cause of death, as in other States not called dry States. Whether this is true or not makes little difference to my argument.

The fact remains, that the amount of intoxicating liquors used is greatly on the increase, and this makes the "dry" argument seem of little account,

except as it affects the price and quality of alcohol as a drug. What has happened in the past sixty years is admitted on all sides, that the price of all habit producing drugs is many times as high as formerly and they are of such poor quality that one cannot tell what they contain. In some of the prohibition States it has been the boast of some dealers that they could make a barrel of whiskey for a few cents a gallon and make an enormous profit, and this is what we have to give to our patients. I see no good reason why this drug shouldn't be as good as can be made, and as cheap as it can be sold for the unfortunate sick, who cannot afford high prices and need the best of drugs to save their lives.

In the past few years very stringent laws have been passed, pushed by people who believe that they can make people good by law, and aimed at the habit, utterly overlooking the medicinal use. These laws have been placed on the statute books of several of our States, and have become national laws in some countries; the idea seeming to be that habits can be stopped in this way, by making the price high and the drug scarce. The price of morphine in the past four years has doubled and trebled. This applies to the sick as well as to those who have the habit, and brings untold misery to both. The drug should be as cheap as possible for the sick; the States should build hospitals for those who have the habit, treating them with sense and not in such a barbarous way. No possible good can come from it; the product will be sorrow, suffering, deception, thieving, crime. Still the deluded work goes on. The statutes in some of our prohibition States have been added to until they number thousands, showing how unsatisfactory the laws have been even to those who believe the drink habit can be stamped out by law. Legislation to be worth anything must represent the will of the people. Otherwise such laws are worse than useless and only teach said people to evade them or try to apply them to "the other fellow."

I asked a man, who was talking in favor of these laws, how he was going to get along for medicine if he should need it? He promptly answered: "I can easily get it" (acting as though he thought the law wasn't for him, but for the other fellow). One sees many of this sort of men in prohibition States. Laws that make the use of necessary drugs hard, or tie the hands of the physician, or make the price of the drug high for the poor, or in any way prevent the easy obtaining of the remedies that the physician thinks necessary to cure disease, should be removed from the statute books. In many of the dry States, alcoholic liquor does not seem to be classed as a drug, and cannot be had at a drug store even in sickness. You can buy all other drugs you want by having a physician's prescription, but this important drug you cannot legally get, nor does the man who has prepared himself to care for the health of those who cannot care for themselves, have any more privilege than the uneducated, for the physician has no more legal right to buy it than any other citizen. I asked a physician in Vermont if he had any right to buy alcohol at a drug store. He answered, No. I at once asked him, how do you get it? He said, "Well, I do get it at a drug store, but I don't like it, for I have to ask the drug-

gist to break the law and am breaking the law myself." Every one is taught to break the law in prohibitory States.

Vermont is now a high license State. I have been asked what laws I would favor. I do not believe any law will stop the use of intoxicating liquors. There are two classes of men who use liquor to an excess; one is represented by the man who has no habit, but goes out to have a "big time." He drinks to excess, is noisy and rough, uses obscene language in the presence of ladies, and gets into a fight in public places. It has been the rule to enact laws against the liquor seller, to stop this class of men from their wild performances, letting the guilty man, who has been the disturber, go free. I should make the man who acts like this the guilty one, and not interfere with the medicinal use. As it is, thirty-nine who make a good use of liquor are punished just as severely as this man who has made a bad use of it.

The other class is represented by the man who has the habit. He should be treated in a hospital. High prices or making it hard to get will not cure him, nor will it help to make it hard for the sick. It was not my object to attack the numberless laws that have been made by the people with an object to make men good and upright. I would not stand in the way of a law that would vote men into heaven. I only wish to protest against a law that hits at the medicinal use and ties the hands of the physician in his efforts to help the sick.

It now seems that the United States has increased its consumption of beer until it uses more per capita than the Germans, and more wine per capita than the French, using as much whisky and brandy as any other nation, amounting in some of our so called dry States to six quarts a head a year. An effort is now on foot to have the nation prohibit the manufacture of alcoholic liquors. It cannot be of any value, because such a law is aimed at the proper use as well as the improper use. It is never right to steal (unless you are a politician), yet the proper use of liquor is never wrong. If the laws for the proper taking of property and the improper taking of property were the same, such laws would be no more respected than the prohibitory laws are now. In our public schools the teacher makes the rules. It is always bad policy to have the children learn that they can evade the rules of the school, and the best teachers try to make the rules so that the children will respect them. It is the same with the States in making their laws; good laws are not made to evade, but to be respected; people who have not learned to respect the laws are in danger. You can teach people and persuade them to be temperate and careful about their lives. I am in doubt about driving them to be good against their will.

It seems clear to me that for medicinal use alcoholic remedies are poor in quality and unreliable and that the laws that have been enacted have been largely responsible for this condition, and further, that the laws that are now under consideration will be subject to the same criticism and should not be enacted. I refer to the measure aimed by the government at the manufacture of intoxicating liquor. Laws in foreign countries are made to restrict the raising of the opium poppy. The only

good that has been derived is to make the prices go up, making opium high in price and harder to obtain, but like all such laws, it does not discriminate between the worthy poor who need it for sickness and the unfortunates who use it habitually. The belief that the use of opium is wrong, because some one makes a bad use of it, is I suppose, the reason for this law. What is accomplished is only to make the drug scarce and accordingly higher in price.

It seems to me to be a very crude way to fight a very valuable drug that is of great use to the world. Would it not be better to fight the bad use, and not hinder the good use? No good can come from unreasonable laws. Proper regulation of the use of drugs is of the highest importance to the physicians and surgeons of the country, and well worth the attention of my readers.

ACUTE ARTICULAR RHEUMATISM.

BY ALFRED C. REED, M. D.,
Changsha, China.

The opinion is widespread and of good foundation that acute articular rheumatism, or acute rheumatic fever, is of infrequent occurrence in the tropics and in China. Chalmers and Castellani state that among tropical diseases rheumatism is distinctly uncommon. Anders gives it as a disease of temperate climates, and rare in both cold and hot latitudes. Poynton (1) admits that rheumatism is ubiquitous, but says it is more frequent and severe in temperate and changeable climates. Leonard Rogers (2) marks the almost complete absence of rheumatic fever on the plains of India. To this and the coincident absence of scarlatina, he attributes a wide difference in India in the incidence of cardiac disease. Jefferys and Maxwell, in their standard text on Chinese practice, note the nearly total absence of acute rheumatic fever in Chinese children, in whom they have never observed the disease. They comment on the still greater rarity of chorea in Chinese children.

Cantlie (3), in an admirable address before the Society of Tropical Medicine and Hygiene, in London, discussed the subject of acute rheumatism in the tropics with the thesis, "I have for many years spoken and written to the effect that rheumatic fever was a disease which gradually diminished as one passed from temperate to warm climates, and that in the tropics the disease was practically unknown." Cantlie was perplexed to account for the large number of cases of acute rheumatic fever reported in the British Colonial Reports, but this was explained by the inclusion of all forms of so-called rheumatism under the single term. In an experience of ten years in Hong Kong, Cantlie saw but one case of acute rheumatic fever, and that was a second attack in a European recently arrived from England.

In discussing Cantlie's paper, J. M. Atkinson stated that in a term of twenty-five years in Hong Kong, he had not seen six cases of rheumatic fever. W. O. Pon, continuing the discussion, noted the observation of but one case of rheumatic fever in his term of nine years in the Federated Malay

States, with an inpatient service of from 600 to 700 per annum. In closing the discussion, the president of the society, Sir R. Havelock Charles, cited his experience in Afghanistan and Turkestan, where in two years he saw two cases in natives. He stated also that in the British army in India, in 1911, with a strength of 72,371 men, 310 cases of acute rheumatic fever were diagnosed. Among the 4,248 women there were eighteen cases, and among the 7,656 children there were six cases with one death. There were eleven cases among the 5,259 British officers. In the Indian army during the same period, with a strength of 130,441, there were 633 cases of acute rheumatic fever with one death. In the jail population of 109,099, 655 cases were reported with five deaths. He concludes: "So you have a very great number of medical officers of various services, and they can not all be wrong in the diagnosis. I think that you might say that the position with reference to rheumatic fever in the tropics is still *sub judice*." Thus it is apparent that the last word has not been said on the question of the influence of tropical climates on the development and prevalence of acute rheumatic fever, although the prevailing views are expressed in the opinions selected.

On experimental and clinical evidence it may be accepted that acute rheumatic fever is a systemic infective disease, and that it has certain major manifestations which may be grouped primarily under the headings of cardiac lesions, arthropathies, tonsillar infections, and chorea. The term, rheumatism, is an inexact appellation whose connotations are misleading, and which might well be replaced by a scientific descriptive title. The composite and undoubtedly heterogeneous disease entities which have been grouped under this term, are gradually being separated out and specifically described. So acute rheumatic fever has left the rheumatic fold of a century ago, even though it is but now receiving clear definition. We are not at present concerned with the specific cause of the disease, but with stating the problem of its prevalence in hot latitudes and the reasons for its infrequency there.

Taking rheumatic fever as a specific disease due to a systemic infection with some morbid agent, the predisposing causes seem to play a most important role in its development. Among the weightiest predisposing factors, common clinical experience joins in placing the influence of climate, season, and locality. The fact stands that a climate with minimal seasonal variations, particularly if it is hot, does not favor the development of acute rheumatic fever. There is room for study of the relationships borne by hot climates or constant temperatures to the development of this disease. A somewhat analogous case is that of the rarity of scarlatina in hot climates, and these together, as referred to previously, undoubtedly have a bearing on the nature and prevalence of cardiac affections in the tropics.

In the Yale Hospital medical service, chronic rheumatism, muscular rheumatism, so called rheumatoid conditions, and various arthritides are excessively common. Subacute and chronic affections of the large joints are usually reducible to terms of lues, gonorrhea, or tuberculosis. Among

the frequent acute conditions are neuritis and pyogenic infections. Gout is a rarity. Malarial arthritis has not been observed nor would it be expected, as, for reasons yet to be discovered, malaria is notably infrequent in the region of Changsha. To digress briefly, this freedom from malaria is the more remarkable, because Changsha is surrounded by the paddy fields of the rice belt, the anopheles mosquito is found in goodly numbers, and at points such as Changteh, not over 100 miles distant, malaria is prevalent and dangerous.

An occasional case of arthritis deformans is seen, and numerous arthropathic cases depending on paralytic and other nerve lesions. Taken by themselves, cardiac lesions are difficult to relate to rheumatic fever. Tonsillitis is comparatively frequent, but, as often noted by workers among the Chinese, chorea is practically unknown. The single case of chorea in the Yale Hospital medical service is reported below.

The fact that the two cases here presented are reported from China and from a subtropical section, lends significance to their occurrence. The course of acute articular rheumatism is so characteristic and its symptomatology unusually adheres so closely to the classical picture, that it is unnecessary here to repeat the textbook descriptions, or to give detailed case histories.

CASE I. The patient, a male Chinese aged nineteen years, was admitted August 3d, and discharged cured, September 12, 1914. He was a native of Changsha and had always lived in that city. He was a blacksmith by trade. His family history was negative and he gave neither history nor evidence of previous illness or venereal infection. He knew of no other cases similar to his own among his relatives or associates. His illness began three months before admission with palpitation, breathlessness, and pain in both knees, especially the right. The onset followed a period of exposure to wet with severe chilling. The pain in the right knee became more severe, the joint was swollen and acutely tender, this inflammation subsiding spontaneously after ten days. Severe pain and tenderness then developed in the left thigh, and at this time the patient entered the hospital. His complaints on admission were cardiac palpitation, shortness of breath, dyspnea on moderate exertion, exquisite tenderness of the left inner thigh with severe pain, and slight pain in the left knee.

Physical examination showed no murmur or enlargement of the heart. The second pulmonic sound was moderately accentuated. The pulse was slightly irregular and markedly irritable. The patient was of pronounced anemic appearance with poor capillary and peripheral circulation, but no major signs of broken compensation. Four weeks later, a distinct metallic quality appeared in the second aortic sound, with a reduplication of the first sound at the apex. Otherwise the thorax and abdomen were negative.

The left thigh was the seat of a femoral phlebitis, which yielded in a week to elevation, rest, and depletion. As the phlebitis improved, the left knee showed signs of acute inflammation and rapidly became red, swollen, hot, excruciatingly tender, and the site of severe pain. This inflammation was in the synovial and periarticular structures. The temperature lay between 38° and 38.8° C.; the pulse ranged between 76 and 120; the respiration was constant at 20. The urine and stool were normal for the constituents of ordinary interest. The treatment consisted locally of immobilization, applications of oil of gaultheria and olives, and warmth. Constitutional treatment included restricted soft diet, free purgation with salines and alkalies, and the use of the following prescription thrice daily:

R Potassii acetatis,	1.00;
Acidi salicylici,	1.00;
Potassii iodidi,	0.5;
Glycerini,	1.00;
Aque cinnamomi, ad.....	10.00.

M.

Improvement was gradual, but constant, and the patient left the hospital cured, seven weeks after admission.

CASE II. The patient was a male Chinese, aged forty-four years. His family and personal history, outside of the condition for which he sought hospital relief, was entirely negative. He first entered the hospital in the fall of 1913, complaining of breathlessness, indigestion, and swollen lower extremities. This condition was found to depend on a chronic myocardial affection with no evidence of acute inflammatory lesions. Valvular defects were present, but were apparently secondary to the weakness of the myocardium. With broken compensation came varying murmurs, which in turn cleared under the regime of rest in bed, restricted diet, catharsis, and the use of straphanthus. Again, two months later, the patient entered the hospital with recurrence of the symptoms, and was discharged, much improved, after two weeks. His third admission, in the spring of 1914, was necessitated by a third and more complete cardiac decompensation. The cardiac reserve was evidently far exhausted and he did not rally. Various therapeutic courses were followed in succession with the design of decreasing the cardiac load and increasing the cardiac reserve, but he finally left after two months with little benefit and a precarious prognosis.

No history of rheumatic fever was obtainable in this case. A very peculiar feature, however, noted during each of his hospital admissions, was the presence of a well defined minor chorea, limited entirely to the muscles of the face, especially those of the orbits, eyelids, and mouth. The choreic movements appeared chiefly during repose and when the patient was unconscious of observation, although slight twitching was seen from time to time even when he conversed.

Here then was a definite chorea associated with an organic cardiac lesion with neither history nor symptoms of acute rheumatic arthritis or tonsillar infection. The presumption is in favor of its being a rheumatic process.

SUMMARY.

1. Acute rheumatic fever is of infrequent occurrence in tropical countries and is considered rare among the Chinese.

2. Study is needed of the exact relation obtaining between climate and the development of acute rheumatic fever.

3. Two cases are reported from the Yale Hospital, one of acute articular rheumatism, and the other of myocardial associated with chorea. The Yale Hospital is in a subtropical location near the geographical centre of China.

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YALE HOSPITAL.

HEALED TUBERCULOSIS OF THE TONGUE, LARYNX, AND LUNGS.*

By FRANCIS M. POTTENGER, A. M., M. D., LL.D.,
Monrovia, California.

Professor Diseases of the Chest, Medical Department, University of Southern California.

This case is interesting from many standpoints. The extent of the lesions; the fact that the lungs and larynx had been previously involved; the fact that the patient had become addicted to alcohol through medical advice given ten years previously, and that he quit it at once when put under treatment; the fact that he had had general hygienic and climatic treatment without avail for several months before entering the institution; and, the fact that

when put under a regular regime, with tuberculin treatment, he improved at once and continued until all active signs in all lesions had disappeared.

The fact that he had had the disease before, was both an advantage and a disadvantage; an advantage because he had developed a high degree of immunity against the bacilli; a disadvantage because we were attempting to treat an acute process through poorly vascularized scar tissue.

CASE. Patient, man, aged forty-one years. Family history free from tuberculosis, except one maternal aunt. Patient of strong muscular build. Previous diseases, typhoid when twenty-four years old.

Eleven years ago, patient began to show clinical symptoms of tuberculosis; malaise, frequent colds, hoarseness, followed a little later by cough, and bacillus bearing sputum. Physical examination at that time revealed tuberculous infiltration at both apices with complicating infiltration of larynx. Patient stopped work, changed climate, and regained health. Was ordered to drink whiskey for his tuberculosis, which he did until he became thoroughly addicted to its use, taking eight and ten drinks a day. Resumed work and continued same until spring of 1912, without return of symptoms.

Spring of 1912 showed slight cough and some hoarseness, for which he consulted a throat specialist, who treated him until fall of same year. In the summer of 1912, patient developed an ulceration on left side of the tongue, which persisted in spite of all treatment. In October, 1912, patient came to California, expecting the climate to cure him, but not getting the relief he expected, he was sent to me by Doctor Hastings, of Los Angeles.

At the time I first saw him he had active disease in both lungs to the third rib anteriorly, and middle of scapula, posteriorly; infiltration of both true and false cord with some ulceration; infiltration of both arytenoids and the interarytenoid space and ulceration of the right arytenoid, patient articulating with great difficulty; and a large ulcer beginning about one half inch from the tip of the tongue, extending for a distance of one and one half inch along the left border, taking in the entire side of the organ.

Examination of the sputum at this time showed 35 c. c. per diem with 30 bacilli to a field. Urine, 1050 c. c. a day, specific gravity 1.021, free from albumin and sugar, with high indican. Blood, hemoglobin 85; leucocytes 7,500.

Patient was in good physical condition and had a temperature which was rarely much above normal. His nervous and mental condition was bad. Had been under favorable climatic and hygienic conditions since coming to California, but had shown no signs of improvement. Entered sanatorium, March 3, 1913. Was put upon rest, good substantial food without stuffing, continuous open air in an open bungalow, tuberculin, and taken off whiskey at once. July 6, 1913, sputum was reduced to 5 c. c. a day and was free from bacilli on 15 minutes' search, after digestion and shaking; larynx was clearing and the ulceration healed; the ulcer on the tongue healed, except a small deep slit posteriorly. December 24, 1913, sputum scant with no bacilli; lungs free from signs of activity; ulceration in larynx completely healed, infiltration almost disappeared, voice husky, but patient conversed without difficulty; ulcer on tongue closed, but reaction still marked in tissues following each tuberculin injection. March 14, 1914, Lungs healed, presenting only signs of scar tissue with small, healed cavities at both apices; larynx healed, apparently free from all infiltration, voice quite smooth, patient talked without great effort; tongue healed, no longer showing any signs of tuberculin reaction even after large doses.

This result, to my mind, is a triumph for the therapeutic application of tuberculin. It was possible to watch its action from week to week and to control doses by the local process. It was instructive to the physicians, and gave hope and courage to the patients who watched it from time to time.

This is the seventh case of tuberculosis of the tongue that I have treated. Three were in patients with acutely active disease and were under treatment only until the patient succumbed to the pulmonary disease. The other four were in cases of

*Read before the American Therapeutic Society, Albany, N. Y., May 29, 1914.

less activity; three, including the present patient, are healed; one is still under treatment, with the ulcer healing in a satisfactory manner.

Such patients can be treated successfully by knowing what the remedies are expected to do and persisting in their employment. The results seem slow, but tuberculous processes always go slowly, if they go the right way. While a tubercle might soften and be expelled in a few days, it can heal only after weeks and often months. The reason favorable results are not obtained more often, is because of a failure to realize this fact, and because of an inability to keep the patient satisfied and interested long enough, and because of the physician not having confidence that he has within his power the remedy to bring about the desired result.

SPONTANEOUSLY PRECIPITATED ALBUMIN IN URINE.*

By JACOB ROSENBLUM, M. D., PH. D.,
Pittsburgh.

A recent experience in the examination of a specimen of urine in a case of chronic parenchymatous nephritis, demonstrated to the writer a point of considerable interest regarding the question of the occurrence of spontaneously precipitated albumin in urine. This specimen contained a large number of hyaline and granular casts, and the filtered urine gave no tests for albumin. The urine contained a considerable amount of sediment, which resembled that due to amorphous phosphates.

This sediment when collected by filtering the urine, responded to the various color tests for protein, such as Millons, biuret, xanthoproteic, Molisch, and Adamkiewicz. These tests showed that this sediment was composed of albumin and that all of the albumin contained in the specimen was precipitated. A quantitative estimation of the amount of albumin in this specimen by Scherer's method showed the presence of 1.25 gram of albumin to the litre of urine.

A search of the literature fails to show that any case similar to this one has been described. Salkowski (1) has described a case where the urine contained from seven to 8.5 per cent. of albumin, and the albumin had spontaneously separated out as a white amorphous precipitate. Paton (2) studied the urine in a case where a substance separated out as rhombic crystals, which he thought were of the nature of a globulin. Bradshaw (3) and also Rosenbloom (4) have described cases where the Bence Jones protein had spontaneously precipitated from urine.

The only explanation I can offer for the spontaneous precipitation of albumin from the urine in the case described here, is based on the following observations. The specimen in which the albumin had spontaneously precipitated, was strongly alkaline in reaction, and it is well known that serum albumin forms an alkaline albuminate with concentrated alkali. This albuminate is less soluble in water than serum albumin, and this may account for its spontaneous precipitation. This explanation is strengthened by the fact that on the two following

days specimens of urine were obtained from this patient, and while the amount of albumin was 2.5 and three grams to the litre respectively, the albumin did not precipitate spontaneously and the reaction of the urine was acid. The spontaneous precipitation of albumin from the urine may have also been aided by some change in the character of the salts present in the specimen, as the influence of salts (5) on the solution and precipitation of albumin is very marked.

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5737 FORBES STREET.

PRIMARY NASAL DIPHTHERIA.

By HARRY A. SCHATZ, M. D.,
Philadelphia.

Judging from my own personal experience, primary nasal diphtheria in children is more common than the textbooks would lead us to suppose; far more common than the majority of physicians suspect. Furthermore, the statistics compiled by the bureau of health in Philadelphia, at least, contain no record of the percentage of cases of the disease that have their origin in the nasal cavity. In my own practice I have seen one case of primary nasal diphtheria to about every six cases of the faucial type, making an average of about fifteen per cent. My diagnosis in these cases was based upon the examination of cultures made in every case of excreting nasal discharge in children that was accompanied sooner or later by nosebleed, and finding in all of them types of organisms corresponding morphologically to the Klebs-Löffler bacteria. The clinical course of these cases also aroused suspicion in that they grew worse in spite of local treatment continued for a week or more, progressing to the stage of crusting and nosebleed, but clearing promptly in a few days to a week after the administration of antitoxin. Of course, local treatment was not abandoned. In about one half of these cases my diagnosis was confirmed by the local bureau of health.

Scanning the literature of the past few years, for references to nasal diphtheria, I found quite a number of articles, so that I began to feel that anything more written on this subject would be superfluous; but on second thought I concluded that, inasmuch as this undue frequency of the condition was not yet known to physicians in general, and especially as I have a few very striking cases to report, I should not desist from my efforts.

Scott (*American Journal of Obstetrics*, 1910) has treated this subject quite fully. He considers three stages: 1. A primary or acute catarrhal, with profuse, colorless, watery discharge, accompanied by mild or no constitutional symptoms, and which may improve even without treatment in a week or so; 2, a secondary or fibrinous stage, in which the discharge becomes seromucous, gray in color or even brown or bloody red, or else streaked with blood

*From the Biochemical Laboratory of the Western Pennsylvania Hospital.

where streptococci, staphylococci or pseudobacteria are present; the nose being moderately puffy, soggy, flattened, often partly or totally occluded, with excoriations under the nares and around and above the upper lip, accompanied at times by slight cervical adenitis on the affected side; 3, a diphtheritic catarrhal stage, due undoubtedly to the presence of bacteria in the accessory sinuses of the nose, this being the least virulent form. Scott also cites Bretonneau in connection with the diagnosis, viz., the presence of one or two enlarged glands, combined with redness of the upper lip; on the same side as the pathological lesions, are pathognomonic symptoms. In the opinion of Scott, primary nasal diphtheria tends to remain in the nose unless malnutrition or malformation of the septum exists; also that it is especially common in nurslings is the opinion of various writers, so that wherever a coryza in an infant exists longer than usual, and is a little more severe than common, always suspect diphtheria, even if no false membrane is present. The primary or acute catarrhal form is, in the experience of Scott, the most virulent form, the fibrinous form the next most virulent.

Toler (*New Orleans Medical and Surgical Journal*, lxiii, p. 646, 1910-11) says that nasal diphtheria is generally an extension from the fauces, but that it may be primary. This statement is not in accord with most other writers.

Levinson (*Medical Record*, lxxxi, 81, p. 14, 1912) states that every chronic cold in the nose of a child should be suspected as being diphtheria.

Graham (*Archives of Pediatrics*, xxvii, p. 887, 1910) mentions the odor in these cases as being characteristic—sweetish, fecal.

De Biehler (*Archives de médecine des enfants*, 1911) appends the following conclusions: 1. Primary nasal diphtheria is not rare in infants under one year of age. 2. Outside the persistent catarrh with slight oscillations in temperature—often no fever—there are no characteristic symptoms to distinguish it without a smear. 3. Only treatment by antitoxin is rational. 4. Nasal diphtheria in infants invades but rarely the pharynx, larynx, etc., which fact renders it more benign than tonsillar diphtheria. 5. It is absolutely necessary to make a bacterial examination in all cases of supposed catarrh in infants, especially if under one year of age.

What does this imply? It implies that the cases of nasal diphtheria are not often recognized in their incipency—before the child becomes toxic or sick—when a small dose of antitoxin cures it. Contrary to the belief of Biehler, it is my opinion that extension to the fauces is quite common, and we then have a very sick child. To cite a few instances: A mother brought her child, eight years of age, to her family physician for treatment for nosebleed. Local treatment was instituted. Two weeks later the child was buried. The child had developed enlarged lymph glands at the angles of the jaw, angina (faucial diphtheria), and had died of heart failure. Two weeks later a second child in the same family also died with similar throat symptoms. The bureau of health, through its medical inspector, pronounced the deaths to be due to diphtheria in spite of the protests of the family physician to the contrary.

At the time I began to write this little article, I had

under my care an infant one year old whose illness was ushered in by a convulsion. For about two weeks thereafter the child was feverish, but not so seriously ill as to require a doctor's care. When it grew worse, the mother brought the child to the office. Examination revealed moderate fever, a few teeth about to sprout, and a red throat such as was quite common in the colds then prevalent in this locality. On the following day the child was more prostrated, but still there were no definite localizing signs in the upper respiratory tract. On the third day a false membrane was discovered, descending along the posterior pharyngeal wall, having started in the nose. Close questioning now revealed the truth—the child's nose had bled a week before, and an excoriating discharge had existed two weeks before. It required massive doses of antitoxin to save the life of the child, while the false membrane crept over the pharyngeal and faucial mucosa, sparing only the tonsils. Truly these were cases of unusual severity.

School medical inspectors have occasionally overlooked cases of nasal diphtheria, but the sharp eye of the mother can be relied upon to discover the nasal trouble very early. This proves conclusively, to my mind, that the mothers should be instructed to bring to the physician every child presenting a nasal discharge that causes excoriation of the upper lip and nasal vestibule, crusting, and later nosebleed. At this stage it is quickly cured by small or moderate doses of antitoxin. When once it is allowed to invade the fauces, we are dealing with a serious case.

1331 NORTH FRANKLIN STREET.

Abstracts and Reviews.

THE FUNDAMENTAL PRINCIPLES INVOLVED IN THE USE OF THE BONE GRAFT IN SURGERY.*

BY PROFESSOR F. H. ALBEE,
New York,
New York Post-Graduate School.

The duration of cellular life, which under favorable conditions may be quite independent of organic or somatic life long after detachment from the living organism, depends largely upon the means of preservation of the detached part; or, in the case of organic death, the preservation of the whole cadaver; also upon the amount of disintegration from the cause of death. The higher the specialization of the cell, the less marked are its resisting and proliferating powers. The most favorable tissues for grafting purposes are the simpler connective tissues. Autogenous grafts are by far the most trustworthy. With primary union and in the absence of infection, if properly contacted, they are always successful. Infection does not necessarily indicate failure. Hemoplastic grafts, when composed of the lower order of tissues, may be successfully employed, though not with the same certainty as the autogenous. When they are of the more highly

*A résumé of the Munter Lecture for 1911, delivered in Thomson Hall of the College of Physicians, Philadelphia, December 4, 1911.

specialized tissues failure results. There is also the danger of transmission of disease. The heteroplastic graft usually dies when implanted into man.

In bone transplant Nature is confronted with the following problems: 1. The rapid establishment of cellular nutrition and blood supply; 2, union of the graft to the contacted bones or fragments of bones by osteogenesis on the part of the graft or recipient bone, or both; 3, through Wolff's law, which is the adaptation in form and increased strength of the graft to its mechanical requirements. The surgeon can aid Nature by minimizing trauma, by the protection and preservation of the graft bed and graft; by arranging the skin incision so that it will not lie directly over a superficially placed transplant; by excising, if possible, extensive scars from the field of operation; by closely fitting and contacting bone surfaces, which should whenever possible, include the accurate coaptation of periosteum of graft to periosteum of recipient bone, cortex to cortex, endosteum to endosteum, and marrow to marrow, by properly suturing muscle origins and insertions to the proper mechanical locations on grafts which replace skeletal bones or portions of them; by securing sufficient hemostasis in the graft bed; by including in the graft the periosteum, endosteum, and marrow.

The bone contact should be of generous extent, and always to healthy vascular osteogenic bone; the more unfavorable the bone, the greater should be the area of contact. Often early bony union is aided by the interposition of numerous small grafts or fragments of bone. The proper contact of the bone elements can be secured only by the employment of the inlay principle, the modifications of which meet practically all mechanical requirements. A thorough understanding of Wolff's law is imperative: "Every change in the form and position of the bones, or of their function, is followed by certain definite changes in their internal architecture, and by equally definite secondary alterations of their external conformation, in accordance with mechanical laws." The influence of this law upon the success of bone grafting procedures of all kinds cannot be too strongly emphasized. It not only causes the graft to proliferate and strengthen to an almost unlimited degree, if the new mechanical environment of the graft requires it, but also causes the bone from which the graft was removed to be restored to its original strength, and brings about internal reconstruction of the trabeculae and the general histological character of the bone. A graft should be used as soon as possible after its removal. In the author's experience sterile petrolatum has proved a most satisfactory preserving medium. The graft should be either immersed in a jar of petrolatum or wrapped in gauze smeared with it and placed in cold storage at a temperature of 4° to 5° C.

An unabridged enumeration of the indications for the employment of the bone graft would be most difficult, and a tabulation of its general and more specific indications, here given, serves only as a suggestion of its broad field of usefulness. Its trustworthiness as a surgical agent is proven by my success with it in more than 350 cases; by careful study microscopically, macroscopically, and

by the x ray of its results when used experimentally in the presence of primary union and even sepsis. Its field of usefulness is enlarged by the use of motor driven instruments. By the use of the motor outfit in conjunction with kangaroo tendon, I have been able to avoid entirely during the past two years the use of all metal in the form of screws, nails, Lane's plates, wire, etc., for internal bone fixation purposes. This has been possible by making use of well known fundamental mechanical devices, such as bone inlays, wedges, dowels, tongue and groove joints, mortised and dovetail joints. Recognition and full appreciation of the important conclusions of Wolff constitute the treatment of deformities and the application of grafts of all kinds.

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLIII.—What has been your experience with condensed milk as a substitute for the mother's milk? (Closed.)

CLIV.—How do you treat prostatitis? (Answers due not later than January 15, 1915.)

CLV.—What is your experience with high frequency currents in the treatment of tumors of the bladder?

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best paper submitted in answer to Question CLII was awarded to Dr. John E. Lind, of the Government Hospital for the Insane, Washington, D. C., whose article appears below.

PRIZE QUESTION NO. CLII. THE TREATMENT OF BEDSORES.

By JOHN E. LIND, M. D.,
Washington, D. C.

The price of freedom from bedsores is unremitting attention to bedridden patients. Each one of these should be examined at least as often as once in two hours. The position should then be changed if the case is one which permits of this, and the sheets and bedding smoothed out. Bedsores are particularly prone to develop in paralytics and in patients in the last stages of chronic diseases. A well nourished condition of the bodily tissue helps to prevent them and therefore the patient should be overfed. If he is on solid food, but not taking a sufficient quantity of nourishment, two raw eggs beaten up in a pint of milk are given once or twice a day. If he is taking liquid food, broth and milk are given at each meal time and two eggs beaten up in a pint of milk between meals.

When practicable, dependent parts in bedridden patients should be kept on a pneumatic ring. In fracture of spine and similar cases, a pneumatic or water bed, not over filled, should be used. Patients kept in an ordinary bed should have the *sheets stretched tight and pinned to the mattress*. Care should be taken that no crumbs or other foreign substances are allowed to remain in the bedding. Male patients who are incontinent should wear a rubber urinal constantly.

As soon as patient has soiled himself, he should be washed with warm water and castile soap. Then zinc oxide ointment (U. S. P.) is rubbed into the skin with the finger tips. The patient is given an all over rub with fifty per cent. alcohol, to which alum has been added in the proportion of ten grains to the pint, at least once a day and after every soiling if there is any redness of the skin. Following this, the zinc oxide ointment is rubbed in.

When the skin is broken, bathe it with warm water and castile soap, follow with warm saturated solution of boric acid and pat dry with gauze. Then apply the following dusting powder:

Aristol	1 part;
Boric acid	1 part;
Lycopodium	8 parts.

Do this every two hours and relieve pressure at once with pneumatic ring.

When the sore has extended below the skin, the same treatment is used with the addition of irrigation with hydrogen peroxide before the boric acid solution. A few layers of sterile gauze are used for dressing; too much will increase pressure. They are fastened with a light muslin gauze bandage.

Old bedsores with little or no tendency to heal should be stimulated. Ice cold compresses for a few minutes followed by hot ones will sometimes accomplish this. Or they can be cauterized once or twice with lunar caustic or pure carbolic acid. The following ointment is stimulating:

Silver nitrate	1 part;
Balsam of Peru	10 parts;
Zinc oxide ointment	100 parts.

Resistant and multiple bedsores, especially in very emaciated patients, should be kept in a continuous bath at 98° to 99° F. This will keep the patient comfortable and afford the most favorable condition for healing.

Dr. Ben N. Wade, of Portland, Oregon, writes:

Bedsores, or decubitus, is a form of gangrene, caused by long continued pressure on the soft tissues between the bony prominences of the skeleton and the bed. Prophylaxis is by far the most important part of treatment. In exhausting and debilitating diseases, such as typhoid fever and other acute infections, and in injuries and diseases of the cord, as in acute myelitis, tabes, or general paresis, the patients must receive careful attention to prevent this serious and sometimes fatal condition. To avoid continuous pressure over bony prominences, such as over the sacrum, the position of the bedridden patients should be changed every three or four hours, and in thin subjects, these areas may be padded with gauze. And in the treatment of fractures, care must be taken in applying

splints or casts to avoid pressure necrosis over bony prominences.

The bed should be kept smooth and dry, and the sheets should be changed at least once a day, or oftener if soiled. The mattress should be yielding and kept free from ridges.

The skin of these patients requires particular attention and in this hydrotherapy is most important. They should be thoroughly bathed two or three times a day and afterward rubbed with alcohol. After this some bland and mildly antiseptic dusting powder, as talcum, may be applied to keep the skin dry. Frequent and gentle massaging is also indicated, as it stimulates cutaneous circulation. Traumatism should be avoided. In severe trophic disturbances, as in myelitis, the skin does not tolerate much irritation. In these cases vigorous massage, hot applications, and hot water bottles should be used with caution.

The soiling of the skin from urine, sweat, or feces, is to be prevented, if possible, as the moisture predisposes to ulcer formation.

The physiological resistance should be increased by proper diet, fresh air, and good hygiene. A low resistance predisposes to ulcer by causing a decreased nutrition of the skin and subcutaneous tissues. This is further augmented by pressure, filth, or local stasis. Where this condition is extreme, severe or even fatal bacterial infection may result after the sore has formed.

The bowels should be kept open, and tonics, such as the iron preparations or nux vomica, given when indicated. Alteratives may be given, but when the iodides are used, for example potassium iodide, the skin must be watched for signs of iodism, as in this condition it is predisposed to bacterial infection, but they should be administered in syphilitic cases together with other antisiphilitic remedies.

In cases where bedsores have already formed, the patient should be placed on an air mattress or water bed, and no pressure whatever allowed on the sore or adjacent tissues. The previously mentioned measures as hydrotherapy, cleanliness, change of posture, etc., are all to be carried out. In severe cases, where the ulcer spreads rapidly, the patient should be placed in a continuous warm bath. Occasional immersion in water has a stimulating effect on the peripheral circulation. The production of local hyperemia by any method, has this result. Attempts at overstimulation, however, both general and local, should be avoided.

Local treatment is much the same as in similar conditions, as in chronic leg ulcer, and should be carried out according to the principles of aseptic surgery. If a suspicious red spot is noticed, a large air ring should be used at once to relieve the local pressure. Where the sore has already formed, relief of local pressure is obtained by soft gauze pads and the pneumatic ring and, when possible, an air mattress or water bed should be used also.

The ulcer should be cleansed two or three times a day, or oftener if septic. It may be irrigated with normal saline solution, weak iodine or boric acid, or one to 5,000 mercury bichloride solutions, or occasionally with more astringent solutions, as one to 5,000 potassium permanganate or one to 10,000 silver nitrate. Alcohol, tincture of iodine, or other

strong antiseptic should be used with extreme care lest it cause too much irritation. *Balsam of Peru* is a splendid preparation, both for its stimulating effect on granulation tissue formation and its antiseptic action.

Dusting powders, as thymol iodide, acetanilid, boric acid, and iodoform are among those frequently used for dry dressings. Stimulating ointments, as ten per cent. balsam of Peru, ten per cent. ichthyol, or mild scarlet red may also be used in some cases. Hot boric dressings may be used in septic cases, but overheating must be guarded against.

In sloughing ulcers, it may be necessary to remove the necrotic tissue by operation or cautery. Small necrotic areas, or areas of unhealthy granulation tissue, may be curetted out or cauterized with phenol or nitrate of silver. In large extensive sores, where tissue destruction has been great, it may become necessary, when the granulations become healthy and infection minimized, to skin graft the raw surface to promote further attempts at healing, or, in some cases, neighboring skin flaps may be used and successfully approximated.

Dr. Samuel G. Ehrenreich, of New York, observes:

Prophylaxis.—Before describing the actual treatment of bedsores, it is of the greatest importance primarily to say a few words in regard to their prevention. The most painstaking and scrupulous attention must be given to everything that comes in contact with the patient's body, especially to the parts exposed to pressure. The nurse or attendant must see that the bed linen and draw sheets are placed smoothly over the bed, that there are no creases, crumblings, or other particles of food or foreign bodies on the sheet, and that no contamination by urine or feces is allowed; extra precautions must be taken in the summer time when patients perspire freely; during hot weather the sheets should be frequently changed, so as to prevent decomposition of the sweat. The skin of the entire body, especially the back, should be examined daily by the nurse (and by the physician, whenever possible), washed with warm water and castile soap, followed by a rubbing with a fifty per cent. solution of alcohol, then dried, and dusted over with talcum or boric acid powder, or zinc stearate. At the same time the patient's bowels must be kept open and his general health looked into and improved. Another very important prophylactic procedure is the changing of the patient's position in bed as frequently as is feasible, so as not to have a too constant and prolonged pressure upon any one part.

Treatment.—If the skin becomes red, and this, by the way, is always the first objective sign of a bed-sore, or if the patient complains of pain over the sacral area, heel, or back, wet dressings of liquor Burrowi or lead and opium wash should be applied or the affected part should be painted with collodion and protected from pressure by a circular rubber ring or water pillow. Should the patient be very feeble or old, or a paraplegic, he should at once be placed on an air or water bed, preferably the latter, which must be sufficiently but not excessively distended. If there is too little water, the weight of the body will displace this and the desired result

will not be obtained, while if there is too much the bed becomes hard and extremely uncomfortable, and fails in the object for which it was employed. Even on a water bed, great care must be exercised; the patient's position must be altered every now and then, and the body kept scrupulously clean.

When the skin over the affected area is gone and a wound is already present, the chief factor in treatment, as with all wounds, is strict asepsis. A nurse who is taking care of cases of erysipelas, scarlet fever, or other contagious diseases should be prohibited from treating bedsores wounds. Sterile rubber gloves should be worn, and all solutions, dressings, instruments, etc., coming in contact with the wound must be carefully and thoroughly sterilized, or the results may be disastrous and fatal.

The method of treatment of the wound itself depends entirely upon appearance, extent, whether surgically clean or infected, etc. When a bed-sore is superficial, but not infected, that is, free from bacteria, the remedy giving most satisfactory results has been a daily application of ten per cent. scarlet red ointment in carbolated petrolatum; healing is comparatively rapid and certain; the only objection to its use is the discoloration of the bed linen, but this can always be prevented by employing sufficient gauze; adhesive plaster straps should never be used to fasten the dressing to the skin, as this almost invariably does harm by further irritating the skin; a bandage, lightly applied, should always be preferred.

When a wound is superficial, but not thoroughly aseptic, it should be thoroughly but gently washed with a one to 5,000 bichloride of mercury solution, and then dressed with a ten per cent. boric acid ointment; as soon as all signs of infection have gone the treatment above outlined is followed. The surrounding skin must be rubbed daily with a soothing and hardening application, such as fifty per cent. alcohol, or better still, a mixture of white of egg and brandy. The results obtained in superficial bed-sore wounds have almost invariably been exceedingly gratifying, with the exception of those cases where a lesion of the spinal cord exists and the sensation of deeper tissues and skin is gone.

In bed-sore wounds of the deeper variety an entirely different course of treatment must be pursued; it is imperative that gloves be worn, that instruments and dressings be carefully sterilized and ready before the old dressing is removed, so as to minimize the time of exposure of the wound. The latter is first gently dried with small pledgets of gauze held in a dressing forceps; all gangrenous or almost sloughy tissue is now clipped off with a pair of sharp scissors and the entire wound gently irrigated with a fifty per cent. solution of warm peroxide of hydrogen, followed by an irrigation of warm boric acid solution, or better still, sterile saline solution. An irrigator or a four ounce hand syringe is employed for this purpose. A long narrow strip of gauze is now saturated with a ten per cent. solution of balsam of Peru in castor oil and inserted to the bottom of the wound and covered with four by eight inch pads of gauze. This dressing is renewed every twenty-four hours. If granulation tissue is excessive or if the edge of the wound should show a sluggish tendency to heal, a "touching up" with the silver nitrate stick will

hasten matters. Should the wound have a foul odor, then a one to 1,000 solution of potassium permanganate should be employed for irrigation instead of the peroxide, and an occasional dressing with five per cent. iodoform gauze. At the same time that local treatment is being administered, the general health must be attended to by giving plenty of nourishment, fresh air, tonics when indicated, etc., and by avoiding constipation, excitement, and worry.

When a bedsore is spreading in spite of the treatment above outlined, when the patient has a septic temperature, looks hectic, and has a low polynuclear count, very little usually can be done, the result being a fatal one in the majority of cases.

(To be concluded.)

Therapeutic Notes.

Colonic Alimentation.—Alois Graham, in the *Journal of the Indiana State Medical Association* for May, 1914, expresses a partiality for the administration of nutritive enemas of small, rather than large size, especially in the beginning of rectocolic alimentation, and recommends their use to those who are still somewhat pessimistic as to the value of this method of feeding. The formula he usually employs comprises: Solution of peptones, two to three ounces (60 to 90 c. c.); solution of glucose (fifteen per cent.), one half to one ounce (15 to 30 grams); normal saline solution, enough to make four to six ounces (120 to 180 c. c.). Not more than three such enemas should be given during the first twenty-four hours. If they are well borne, four may be given the second day, and if signs of local irritation then appear, the frequency may be gradually increased up to one every three or four hours. The preliminary cleansing enemas of saline solution should be given cold, as they then act more promptly and effectually and render the rectum and colon more tolerant than if given hot. The soapsuds enema so often ordered is contraindicated. In the average case at least one cleansing enema should be given daily, and it is well to wait one hour before the first nutrient enema is administered.

Introduction of the rectal or colon tube high up into the bowel is both difficult and unnecessary, and in fact, is contraindicated, as it has been shown through radiography that the tendency of an enema is to travel rapidly upward toward the ileocecal valve, even though its ascent is not favored by gravity, while if an enema is forced directly into the sigmoid or descending colon it is likely to excite peristalsis and be expelled. Graham advises that, in giving a nutrient enema, the patient be placed on the left side with the knees drawn up and the hips elevated upon a hard cushion or pillow. A small calibre tube, connected with a funnel, should be introduced into the rectum for a distance of only about three inches. The enema should then be introduced slowly at a temperature of from 98° F. to 100° F. With the foregoing plan it will rarely be necessary to use the much advised folded warm towel to make pressure against the anus, to hold the buttocks together, or to add tincture of opium to the enemas.

The composition of the nutrient enemas requires adjustment to the individual case. The rapidity of absorption of water is known to be increased by the addition to it of sodium chloride; this applies also to eggs, to each of which fifteen or twenty grains (one to 1.3 gram) of salt should be added. Alcohol, peptones, raw beef juice, and glucose are well absorbed, but in excessive amounts or frequency prove irritating to the mucosa. In the case of milk proteins, previous peptonization is advisable. Starch is well absorbed, especially if already acted on by ferments. Gelatin is not absorbed, but a small proportion of fats of low melting point are absorbed, providing they have been emulsified. In some cases stimulating or vessel filling enemas are indicated, at least temporarily, more than are the nourishing enemas. Thus, in exhaustion from hemorrhage, eight ounces (240 c. c.) of warm normal saline solution may be given and repeated, if necessary, every three or four hours; to this may be occasionally added two ounces (60 c. c.) of alcohol in the form of wine, whisky, or brandy. In cases of shock or collapse, an enema containing hot black coffee is of value. Where nutrient enemas must be given continuously for a long period, it is a good plan to change their composition from time to time, as this will tend to obviate irritation of the mucous membrane.

Treatment of Fractures of the Leg Bones.—

F. E. Peckham, in the *Providence Medical Journal* for March, 1914, asserts that in fractures of both bones of the leg reduction is best accomplished with mechanical aid. A Bradford frame should be constructed, with a post at one end to rest against the perineum for counterextension, and a windlass arrangement at the other, for the purpose of direct extension. Extension should be made with webbing around the ankle, so disposed that the pressure will come in front across the dorsum of the foot and posteriorly just above the heel. The ankle and foot should be well padded with thick gray felt.

In a transverse fracture of the tibia, with a fracture of the fibula also, the direct pull in extension need not be very great. The fragments may be lifted upward until they are end to end in an angular position, next slowly let down, and enough extension then made to hold the leg straight. In an oblique fracture, on the contrary, very great extension may be necessary to permit of getting the fragments down to position. As in Colles' fracture, an early setting is of great importance because muscular contraction takes place very soon after the injury. After reduction the leg should be radiographed, to ascertain if it is actually being held in place by the foregoing mechanical arrangement.

Treatment of Dysmenorrhea.—Siredey and Lemaire, in *Paris médical* for April 25, 1914, state that all acute attacks of dysmenorrhea require anodynes. They recommend rectal suppositories, or a sedative enema, for example:

R Decoeti lini, 3v (150 grams);
Atropinæ, gr. xv (1 gram);
Tincture belladonnæ foliorum, gtt. v-x;
Tincture opii, gtt. xv-xx.
M. Sig.: To be heated to 50° C. on the water bath before use.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal and The Medical News.

A Weekly Review of Medicine.

EDITORS

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Address all communications to
A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,
66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transporta-
tion through the mail as second class matter.

Cable Address: Medjour, New York.

NEW YORK, SATURDAY, JANUARY 2, 1915.

HOSPITAL SHORTCOMINGS.

Municipal hospitals should be so conducted that the people whom they are supposed to serve have no hesitancy in patronizing them whenever occasion arises. There is certainly no dearth of hospitals in New York city. The opportunity to get treatment, either by paying for the service or gratis in the event of being unable to pay, is denied to no one. With such seemingly ideal conditions it comes with a shock to learn that from eighty-nine to 91.4 per cent. of all sickness in New York is cared for in private homes. This estimate was made by the Committee on Inquiry into the departments of health, charities, and Bellevue and allied hospitals, and is embodied in detail in the report which they recently submitted to the Board of Estimate and Apportionment.

The committee arrive at their conclusions in two ways: First, the number of deaths recorded at the health department from various diseases was multiplied by the generally accepted ratios for existing cases of the same disease; second, a district on the lower east side in the vicinity of Rivington and Eldridge Streets, and a vicinity on the west side in the neighborhood of Ninth Avenue and Thirty-sixth Street were canvassed by families to ascertain the amount and character of sickness from which they had suffered and the treatment afforded. In the lower east side district, with a population of 621,339,

there were during the year 1910, 370,000 days of sickness in hospitals against 3,600,000 in the homes. In the west side district, with a population of about 140,000, there were 116,000 days of sickness in the hospitals, against 1,427,000 in the homes. About 10.6 per cent. of the sickness on the east side was taken to hospitals, while 32.3 per cent. was treated in dispensaries. Of those who went to the dispensaries only seventy-one per cent. returned for a second treatment. The records of Gouverneur Dispensary showed that less than fifty per cent. of their patients returned for the second treatment.

The committee account for this condition of affairs in several ways. They believe that lack of faith in the hospitals and resentment of the treatment received in the dispensaries are important factors. The overcrowded condition of the dispensaries and the long waiting is thought to keep many patients from making the second visit. As a remedy, they propose that the city establish a "health centre" to be administered jointly by Bellevue Hospital and the department of health. They suggest that all the functions performed by the different bureaus of the health department appertaining to the district in which a given health centre is situated should be centralized in one building. These functions as at present administered consist of (a) a tuberculosis clinic, (b) a child hygiene clinic and associated milk depot, (c) a dental clinic for children, (d) inspectors of contagious and infectious diseases and associated nurses, (e) the physicians and nurses engaged in the medical inspection of schools, and (f) the department for the supervision of midwives.

By bringing the hospitals and the health department into active cooperation in a common health administration centre, it is believed that many of the existing abuses and shortcomings of the present dispensary system could be effectually overcome. The contention of the committee that such a plan would prevent any territory being left uncovered is certainly well founded. Furthermore, it cannot be gainsaid that the people themselves would welcome almost any plan that would change existing conditions. Therefore we are inclined to favor the committee's suggestion that the city establish at least one health centre on an experimental basis. This good should follow: First, increased knowledge as to whether information regarding living and working conditions will be an aid in the prevention and treatment of sickness; and, second, whether discrimination can be made between patients who should go to hospitals and those that should stay at home.

Beside these two main additions to our knowledge concerning the best way to afford treatment to the poor, there would be increased efficiency in the measures taken to prevent disease. One of the main

helps would be the supervision of contagious and infectious diseases cared for in the home, thereby lessening the danger of spreading. Contagious diseases discovered by the physicians and nurses of Bellevue would come to the notice of the health department at once without the delay of notification by mail. Another benefit of cooperation between the hospitals and health department lies in its educative value. When people see that the prevention of disease and its cure are in reality parts of one and the same science, we can expect more intelligent public cooperation with the officials. There is certainly no quicker way of bringing about the cooperation of individuals than by setting the example among organized departments.

FOUNDATIONS AND POLITICS.

Was there ever so grotesque—so Venetian—a aspect of civic freedom as may be seen now on almost any day by any citizen who reads his paper thoughtfully? A few criminals and murderers are on the platform, talking inaudibly, yet they are heard. About the platform is a body of lawyers, sometimes a dozen strong, who are occupied in finding new evasions and writs, while beyond and beneath them extend a mob of many millions, who have lost faith that the penalties of the law can and always will be found for a breach of it. These citizens, who in Horace Walpole's phrase have "out-lived the glories of their country," no doubt find the irony of the situation amusing, but their sense of humor is a little strained. Do they ever inquire why these legal activities are not investigated, though studious or at least collegiate activities are objects of Congressional scrutiny? Have they read that the Federal Commission on Industrial Relations has met with the expressed intention of "investigating the activities" of the Carnegie and Sage Foundations, the Baron de Hirsch Fund, the Rockefeller Foundations. It is true that this sorry illustration of the law's ineptitude has been noted in the newspapers, but the wretched pantomime of those who conspire to break the law and evade its discipline, a condition of things too ridiculous to be suggested in a comic Utopia, is such a commonplace in our politics that no one appears even to notice it.

The arguments that might be urged against an organization like the Carnegie Foundation seem to us scientific rather than political, social rather than legal. Take for instance the report on medical schools and universities. There were too many institutions, but in this and in other respects there has been an improvement. But the seeds of the change were sown long before the Foundation produced any fruit, if such a term can be applied to its

barren memoranda, and even the name of Dr. Andrew Carnegie does not convince us that national taste and education were so crude that no natural refinement and progress were possible. To be above the national taste may be a good thing, but it is to be within the reach of the tyrannical. To found a concern to tell in a dry and tasteless way what the nation can be left to undertake itself, is to make a travesty of national authority which will react injuriously in more than one direction.

American hustle and its *gaucherie* can be corrected by the influence of the universities, and on the whole, they do this work very well. We know something about universities, and look upon ourselves as entitled to talk about them, at least to laymen. We are firmly convinced that universities improve from within, that they must grow like other things, that even the small and indigent institution leaves an indelible stamp on the mind, that the man who has passed through it is never the same man. It is not the university but the man who is really responsible when he fails. If millionaires can govern universities or make them after their own pattern, there will be less incentive to the student's taste, though there may be a greater incentive to his avarice. It will be a sorry day, when the millionaire, drunk with the gloomy insolence of conceit, takes the administration of learning into his own hands.

DYSENTERY AND EMETINE.

Perhaps the most interesting part of Sandwith's recent Lettsomian lectures on dysentery (better the dysenteries) is his discussion of emetine in the treatment of the amebic form of this important group of maladies. The history of the use of ipecac in the therapeutics of dysentery furnishes an apt illustration of how slow the human mind is to reach the simplicity of the final result. First recommended in the treatment of dysentery as early as 1625, ipecac fell into disuse and was revived again by Docker in 1858. Its use, with the preliminary dose of opium and a mustard plaster over the epigastrium, was taught by Murchison, but despite good results it again fell into disuse till finally again revived by Manson.

In the meantime the pharmacologists had isolated several alkaloids from the drug, and Vedder made the first step in placing the matter upon a scientific foundation by showing, in 1910, that solutions of emetine, one in 100,000, possessed the power of destroying nonpathogenic amœbæ in cultures. Rogers confirmed this effect on *Entameba histolytica* in dysenteric stools. Previous to his work emetine had been employed with good effect in dysentery, but to Rogers we are indebted for the introduction of the

use of emetine hydrochloride by the intramuscular method.

From his experience Sandwith directs attention to certain details of importance. The remedy must be injected deeply and not immediately under the skin. Dissolved in sterile water it may be injected in almost any convenient region of the body. He has not seen nausea nor any bad effects follow its use. Some local muscular pain is the worst complaint he has met with. He has seen cases relapse after the three days of treatment (without bismuth) usually recommended, and now gives two injections of one half grain each on the first day, then daily injections of the same quantity for one week, followed by the same injections on alternate days for one more week. Under this method he has not seen relapses. In urgent cases he would not hesitate to give half grain or even one grain doses every four hours. He does not mention the intravenous use of the remedy. Keratin coated, emetine may also be given efficaciously by mouth, but may cause vomiting, and is not so rapid in its action. When all symptoms disappear yet ameba cysts continue to appear in the stools, he recommends ipecac by mouth for a time.

Rogers, from experiments on animals, assumes it to be likely that the lethal dose of emetine for an average man of one hundred and fifty pounds' weight would be fifteen grains intramuscularly or five grains intravenously. It seems to have no cumulative action. In Sandwith's language, "after 240 years of empirical use of ipecacuanha we can now dignify this drug as being parasitotropic for amebic dysentery, and what is better still, as monotropic, in Ehrlich's language," which is to say that we have added one more member to our pitifully brief list of specific remedies. Sandwith also places value upon the use of bismuth in amebic dysentery, and thinks, with James, that the two remedies (emetine and bismuth) may be advantageously employed at the same time.

A study of stools in these cases is of importance, not only to prevent reinfection of the individual, but to eliminate carriers, who are a menace to the public health.

A NEW SPECIALTY AND DOCTOR SAJOUS'S NEW CLINIC.

Paris has an institution for the study of the diseases of the ductless glands, created and endowed by Baron Henry de Rothschild, and directed by a well known investigator in this essentially modern line of work, Doctor Léopold-Levi. Philadelphia is also to possess in the Charity Hospital, which has been completely remodelled of late, a clinic, the first on the American continent, for the thorough study

of the same class of diseases. The disorders to be studied include the following: Exophthalmic goitre or Graves's disease, myxedema, cretinism, hypothyroidism, infantilism, goitre, thyroiditis, idiocy, imbecility, backward children, microcephaly, dementia præcox, obesity, adiposis dolorosa or Dercum's disease, adipositas cerebialis of Fröhlich, adiposogenital syndrome of Launois, symmetrical adenolipomatosis and fat neck, pituitary infantilism, acromegaly, pituitary tumor, stunted growth, achondroplasia, Addison's disease, hypoadrenalism, terminal hypoadrenalism, hyperadrenalism, adrenal hematoma, hypernephroma, chronic hereditary trophoedema, enlarged thymus, status lymphaticus.

In addition to researches upon the diseases of the ductless glands *per se*, which diseases are now in sufficient number to warrant the creation by Dr. Charles E. de M. Sajous of a new specialty he has termed *hemadenology* (Greek *αἷμα* blood, *ἀδὴν* gland, *λόγος*, discourse), the relations of the internal secretions to general diseases and diseases of special organs will also be studied in conjunction with members of the hospital staff in charge of other departments.

The importance to our profession of the researches to be carried on in the new clinic at Charity is suggested by the fact that over 6,000 children in Philadelphia schools are victims of backwardness, who could in many instances be greatly benefited, while dementia præcox has been regarded as the starting point of one fourth of the cases in our insane asylums.

EGOTISM OF THE HOMICIDE.

One cannot but be struck by one not uncommon characteristic of murderers, and that is their supreme and shocking egotism. This is a not infrequent symptom of the chronic alcoholic, one that renders him extremely impatient of restraint and of counsel or entreaty and remains with him after his incarceration in a jail or inebriate asylum, where he is forever talking about himself and his symptoms. Two men recently on trial were the beneficiaries of almost unbelievable sacrifices on the part of their women relatives, and both rewarded these with characteristic contempt and ingratitude, not even silent, but blatantly set forth to newspaper men. Both men apparently enjoyed the publicity of a trial and did some notable histrionic work for the benefit of the jury. Both had an unbroken history of self indulgence and selfishness. Prohibition—even real prohibition—would do nothing for such types, save to deprive them of their Dutch courage, which they could probably recover in the un-governed fits of rage in which they are accustomed to indulge when no one stronger is present to resent them.

The modesty of another conspicuous prisoner is in such sharp contrast to the mental attitude of the two undoubted homicides as almost to constitute another evidence of innocence.

Obituary.

ALBERT F. A. KING, A. M., M. D., LL. D.,
of Washington, D. C.

Doctor King died at Washington, December 13, 1914, in his seventy-fourth year, having been born at Blackthorne, Oxfordshire, England, in 1841. He came to the United States in his boyhood, and studied at Columbian College, now George Washington University, where he graduated, subsequently obtaining his degree of M. D. at the University of Pennsylvania in 1865. During the closing years of the Civil War, Doctor King served as assistant surgeon in the Federal army. For many years he was professor of obstetrics both at George Washington University and at the University of Vermont, where he received the honorary degrees of A. M. and LL. D. His textbook on obstetrics, which grew with the years from a small manual to a large and imposing volume, is probably the work on the subject best known to American students. Doctor King is credited by many physicians with the first announcement of the theory that the mosquito has a causal relation to malaria. He is survived by a widow, a son, and two daughters.

News Items.

Change of Address.—Dr. E. Franklin Smith, to 98 Cedar Avenue, Richmond Hill, Long Island.
Dr. Waldo H. Sanford, to 600 West 160th Street, New York.

Dr. F. G. Young, to the Plymouth, 38 Fort Washington Avenue, New York.

Dr. L. B. Groeschel, to 47 Fort Washington Avenue, New York.

Philadelphia Medical Examiners' Association.—Dr. R. Max Goepp has been elected president of this society. Dr. Ernest W. Kelsey, vice-president and treasurer, and Dr. Victor A. Loeb, secretary, to serve during 1915.

Harvey Society Lectures.—The next lecture in the course will be given on the evening of January 16th, by Dr. Edward R. Baldwin, of the Adirondack Cottage Sanatorium, on Immunity in Tuberculosis with Special Reference to Racial and Clinical Manifestations.

German Medical Society of the City of New York.—Dr. Wolff Freudenthal was elected president of this society at the annual meeting held on Monday, December 7th. Other officers were elected as follows: Dr. Herman Fischer, vice-president; Dr. Walter Bopp, secretary; Dr. F. Kammerer, Dr. Carl Pfister, Dr. G. Seeligmann, Dr. Norbert Stadtmüller, and Dr. Franz Torek, members of the council.

Philadelphia Academy of Surgery.—At the December meeting of this society the following officers were elected to serve during 1915: President, Dr. John H. Gibbon; first vice-president, Dr. Charles H. Frazier; second vice-president, Dr. Edward Martin; secretary, Dr. George P. Müller; treasurer, Dr. Edward B. Hodge; recorder, Dr. John H. Jopson; council, Dr. Thomas R. Neilson and Dr. J. Chalmers DaCosta; business committee, Dr. George G. Ross and Dr. John Speese.

Examination for Physician in the Indian Service.—The United States Civil Service Commission announces a competitive examination on February 3, 1915, open to men only, for the position of physician in the Indian Service at the Hayward School, Wisconsin, at a salary of \$1,100. For this position unmarried men, without dependents, are desired. Persons who desire to take this examination should apply at once for Form 1312 to the United States Civil Service Commission, Washington, D. C.

North Texas Medical Association.—At the annual meeting of this association, held in Dallas on December 8th and 9th, the following officers were elected: President, Dr. R. W. Baird, of Dallas; vice-president, Dr. M. M. Morrison, of Denison; secretary, Dr. H. Leslie Moore, of Dallas; treasurer, Dr. C. R. Johnson, of Gainesville; councillors, Dr. R. S. Loving, of Dallas, and Dr. L. H. Reeves, of Decatur.

Relief Fund for Belgian Physicians.—Dr. Frank F. Simpson, of Pittsburgh, treasurer of the Committee of American Physicians for the Relief of the Belgian Profession, has issued the following report of contributions received during the week ending December 26, 1914: Union Trust Company, banking facilities; Sterrett & Acheson, attorneys, professional service; F. O. S., \$25; F. H. M., \$100; F. F. S., \$100; S. P., \$25; G. C. S., \$5; S. A., \$20; E. W., \$25; B. L., \$10; T. E. S., \$20; T. L. S., \$25; R. S. E., \$10; M. W. R., \$10; W. A. P., \$25; M. C. S., \$5. Total, \$405.

The Administration of Anesthetics.—At the December meeting of the New York Society of Anesthetists, the following resolution was adopted:

Resolved, That it be the sense of the New York Society of Anesthetists, that the administration of a general anesthetic by any one other than a regularly qualified practitioner of medicine be not allowed; and that the county and State societies be asked to press legislation to this end and, further, that this action by the New York Society of Anesthetists be published in all the State medical journals.

Dr. T. Drysdale Buchanan is president of this society and Dr. H. Clifton Luke, of 204 West 110th Street, is secretary-treasurer.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, January 4th, Academy of Surgery, Philadelphia Clinical Association; Tuesday, January 5th, Wills Hospital Ophthalmic Society, Aid Association of the County Medical Society (directors), Physicians' Motor Club, Medical Examiners' Association, Philadelphia Laryngological Society; Wednesday, January 6th, Physicians' Motor Club (directors), College of Physicians, Lebanon Hospital Medical Society; Thursday, January 7th, Obstetrical Society; Friday, January 8th, Northern Medical Association, Psychiatric Society, Kensington Branch of the County Medical Society.

Southern Surgical and Gynecological Association.—At the annual meeting of this association, held in Asheville, N. C., on Wednesday and Thursday, December 16th and 17th, the following officers were elected: Dr. Bacon Saunders, of Fort Worth, Texas, president; Dr. Thomas S. Cullen, of Baltimore, first vice-president; Dr. S. M. D. Clark, of New Orleans, second vice-president; Dr. W. D. Haggard, of Nashville, Tenn., secretary; Dr. Le Grand Guerry, of Columbia, S. C., treasurer. Cincinnati was selected as the place for the next annual meeting. Dr. Joseph Taber Johnson, of Washington, D. C., and Dr. N. Shilling, of Cedar Bayou, Texas, were elected to honorary fellowship in the society.

Fined One Hundred Dollars for Failure to File Birth Certificate.—A New York physician was recently fined \$100 for failure to comply with the law which requires physicians and midwives to file birth certificates within ten days of the occurrence of the birth. The defense set up was that it was the custom in the Hebrew faith to name the child only after circumcision and that on this account he did not get the name in time to file it within the prescribed limit. The department gives notice that this requirement will be enforced with increased stringency in the future. A recent investigation by the Department of Health shows ninety-nine per cent. of registration in the borough of Manhattan, and even a better record in the borough of the Bronx.

Physicians in the Maine Legislature.—In the twenty-seventh legislature of the State of Maine, which convenes on Wednesday, January 6th, will be twelve physicians, five in the senate and seven in the house of representatives. The physicians in the new senate are Dr. Aaron J. Fulton, of Aroostook; Dr. Alonzo M. Garcelon, of Androscoggin; Dr. Henry M. Moulton, of Cumberland; Dr. G. Gilmore Weld, of Penobscot, and Dr. Wallace N. Price, of Sagadahoc. In the house of representatives the physicians are Dr. Richard T. Leader, of Lewiston; Dr. Albert W. Plummer, of Lisbon; Dr. Augustine B. Libby, of Merrill; Dr. Isaac D. Harper, of Gorham; Dr. Elmer J. Morrison, of Bar Harbor; Dr. Cecil E. Wasgatt, of Deer Isle, and Dr. Adelbert Millett, of Belfast.

Reorganization of the Staff of Charity Hospital, Philadelphia.—The following appointments have been made to the staff of the Charity Hospital, Philadelphia: Department of ductless glands, Dr. C. E. de M. Sajous, Kontgenologist, Dr. William S. Newcomet. Physicians, Dr. G. Morton Ilman and Dr. George A. Knowles; assistant physicians, Dr. Michael Wohl and Dr. Charles Bowne. Surgeons, Dr. J. M. Cunningham and Dr. Louis Baer. Gynecologists, Dr. H. B. Ingle and Dr. A. E. Oliensis. Ophthalmologists, Dr. E. S. Saylor and Dr. N. B. Brinkerhoff. Laryngologist, Dr. George A. Doyle. Pediatricists, Dr. William H. Wells and Dr. Charles W. West. Department of tuberculosis, Dr. J. D. McLean. Pathologist, Dr. E. J. Asnis. Resident physician, Dr. Frederick Eft. Medical director, Dr. Wilmer Krusen.

A Consolidation of Washington Heights Medical Societies Planned.—There are two medical societies in the Washington Heights section of New York, the Audubon Medical Society and the Washington Heights Medical Society, and the advisability of consolidating them is under consideration. It is understood that action will be taken in the near future. The Audubon Medical Society meets on the fourth Friday of each month and its officers are: Dr. T. K. Tuthill, president; Dr. R. E. Walsh, first vice-president; Dr. G. T. Smith, second vice-president; Dr. S. J. Furst, secretary; Dr. T. E. Elmendorf, treasurer. The Washington Heights Society, which meets on the fourth Tuesdays of the month, has the following officers: Dr. Frank E. E. Shaw, president; Dr. W. H. Boese, secretary, and Dr. R. H. Rose, treasurer.

Public Lectures on Prevention of Disease.—The Public Health Education Committee of the Medical Society of the County of New York has arranged a series of lectures on public health topics which will be given at the New York Academy of Medicine on alternate Tuesday evenings and Thursday afternoons from January 5th to February 25th. Among the subjects to be discussed are the influence of street conditions on public health, rheumatism, methods for the prevention of contagious diseases, avenues of entrance for our germ enemies, conservation of useful lives, common parental blunders in child training, facts about foods and drugs in general use, and women's health in relation to mental and physical efficiency. These lectures are open to the public and no cards are required. Dr. Esther Leslie Jeffers is chairman of the committee and Dr. Wilhelmina A. Ragland secretary.

The Sanitary Manufacture of Cigars.—Under its sanitary code, the Department of Health of the City of Chicago supervises establishments in which cigars and cigarettes are manufactured. The Sanitary Code of San Francisco forbids the placing between the lips or in the mouth the ends of cigars in the process of manufacture, also spraying or moistening tobacco by means of water emitted from the mouth. The regulations of New York State govern to some extent the sanitary conditions of cigar factories. The only reference to the same in the New York code is the requirement that cuspidors be placed in cigar factories. There is no legal prohibition of the use of the old familiar process in hand manufacture, of wetting the finger tips with saliva, then dipping them in gum and applying the mixture of gum and saliva to the cigar tip. To a large extent cigars are now manufactured by machinery, which renders unnecessary the use of this filthy process. Undoubtedly, however, some cigars are made by hand. An investigation by inspectors of the Bureau of Infectious Diseases of fifty-eight cigar factories, stores, and homes where cigars are manufactured in New York, revealed but little unsanitary practice. The workers all denied such use, but alleged that others were guilty. One worker was seen to bite off the ends of a cigar he was making. A report from the Research Laboratory of the Department of Health shows that pathogenic organisms remain viable on tobacco for some days, and disease could be transmitted from the mouth of the infected workman to a healthy smoker. This matter was also laid before the Committee on Infectious Diseases of the Advisory Council, whose opinion was that while the supervision of the cigar industry might not afford citizens much protection from communicable diseases, owing to the relatively limited manufacture of cigars in New York, it seemed advisable for the city of New York to take an advance step in the matter. A new section of the sanitary code regulating the process of manufacturing cigars, is in preparation and will probably be shortly adopted by the board of health.

Mortality for Week Ending December 26, 1914.—The mortality during the week just passed did not differ very much from that of the corresponding week in 1913, the total number of deaths for the week being only six more, the rate being 0.44 point less, which is equivalent to a relative decrease of 47 deaths. The number of deaths from measles and scarlet fever was exceedingly low, while the number from whooping cough and typhoid fever was exactly the same as in 1913. Organic heart disease and pulmonary tuberculosis showed a slightly increased mortality. The number of deaths from lobar pneumonia was 99, against 130 in the corresponding week of 1913.

The death rate for the first fifty-two weeks of the year was 13.36 per 1,000 of the population against 13.75 during the corresponding period in 1913, a decrease of 0.39 point. It is fair to assume that the death rate for the year will be close to 13.36 and will thus be the lowest death rate on record since the organization of the department in 1866.

Medical Association of the Isthmian Canal Zone.—This association has expressed its desire to be represented at the Panama-Pacific Exposition, to be held in San Francisco, Cal., during the coming year. At the November meeting of the society it was decided to hold an extraordinary session at the exposition some time during the "medical period," which begins June 13th and ends July 3d. The most desirable time appears to be the week beginning June 14, 1915, as this date is near the meeting to be held by the American Society of Tropical Medicine, and the meeting of the American Medical Association.

It seems appropriate that this society should be represented and it is therefore earnestly requested that all former and present members will endeavor to assemble at San Francisco during that week, and be prepared to support those in charge of the session.

Former members who now live near San Francisco will be asked to take the lead in perfecting the plan, and as soon as the temporary chairman can be appointed, the members are requested to get in early communication with him and express their intentions in regard to attendance, and also offer any suggestions in regard to making the extraordinary session a success.

Due notice will be given as soon as the temporary chairman can be named.

Personal.—Dr. Hubert Arrowsmith, of Brooklyn, has been elected chairman of the Section in Laryngology of the New York Academy of Medicine.

Dr. William L. Cousins, of Portland, Me., has been appointed a member of the State Board of Health, to fill the vacancy caused by the resignation of Dr. Charles D. Smith.

Dr. Charles McDevitt has resigned as receiving physician at the Cincinnati City Hospital and will be succeeded by Dr. E. R. Bader, formerly assistant to Doctor McDevitt.

Dr. William L. Clark, of Philadelphia, has been appointed to the new lectureship on electrotherapy at Jefferson Medical College.

Dr. David E. Hoag, of New York, has been elected adjunct professor of nervous and mental diseases at the New York Polyclinic Medical School and Hospital.

Dr. Sylvester E. Ryan, of Springfield, Mass., has been appointed associate medical examiner for Hampden County.

Dr. Ap Morgan Vance, of Louisville, Ky., has been elected president of the Jefferson County, Ky., Medical Society, to succeed Dr. C. H. Harris.

Another Course of Lectures for Health Department Employees.—The Bureau of Public Health Education of the Department of Health of the City of New York has arranged another series of lectures describing the work of the department and designed especially for the clerks. This course was inaugurated Tuesday afternoon, December 22d, the opening lecture being delivered by Professor Jeremiah W. Jenks on How New York City Is Governed. The second lecture was given on Tuesday, December 29th, by Dr. S. S. Goldwater, commissioner of health, on Aims and Functions of the Department of Health, and next week's lecture will be given by Dr. William H. Park, director of the health department laboratories, on the History and Work of Our Laboratories.

Thus far, five separate lecture courses have been arranged, one for physicians, two for nurses, and two especially for laymen. The lectures are held weekly at four o'clock, the lectures for physicians and for nurses, in the Assembly Hall, Hunter College, Park Avenue and Sixty-eighth Street, the lectures for the laity on Tuesdays and Fridays, in Room 514 of the Municipal Building.

Pith of Current Literature.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

October 4, 1914.

Vaccine Therapy of Gonorrhea, by B. Bloch.—

A case of gonorrheal rheumatism was cured with four injections of antityphoid vaccine, two injections of 0.5 and two of one gram. The author was equally successful in two other cases; each injection was followed by a febrile reaction and subsidence in joint symptoms; he is inclined to think that the benefit of vaccine therapy is due to the reaction, rather than to any specific influence on the part of the vaccine.

WIENER MEDIZINISCHE WOCHENSCHRIFT.

October 5, 1914.

Vaccination in Typhoid, by R. Kraus.—The strongest reactions follow the use of the Pfeiffer-Kolle vaccine. In the prophylactic vaccination of large numbers of patients, as in times of war, the best results as to mortality and morbidity have been obtained with vaccines prepared according to Leishmann and Vincent. Prophylactic injections are given in three doses at six day intervals, the first dose being 100 million, the second 300 million, and the third 500 million. The injections are made either in the flank or in the back and the reaction is very slight. In the treatment of typhoid, intravenous injections of vaccines in the dose of from fifty to 100 million are followed by a rise of temperature of one or two degrees accompanied by a chill. In the course of a few hours the temperature falls by crisis and the patient is, as a rule, free from fever subsequently. The same results were obtained when a polyvalent coli vaccine was used. Doses below twenty-five million do not have any action and doses above 100 million give a very strong reaction.

Venereal Diseases in War, by E. Finger.—Infections take place for the most part either at the time of mobilization or in the actual campaigns. In the prophylactic treatment, instruction regarding the danger of infection and the furnishing of the soldiers with packages containing silver solutions, disinfectant soaps, lysol and sublimate solutions, etc., have helped considerably. Other measures which have also helped are the restriction of alcohol and the curtailment of the stay in large cities. Venereal diseases attacking armies usually show severe complications. These are the result of unhygienic surroundings and the hardships that the soldiers have to undergo. A latent syphilitic infection may influence the healing of a wound and therefore it is of great importance that attention be paid to the treatment of this condition.

Influence of X Ray on Tumors of Mice, by Oskar Frankl and C. P. Kimball.—X ray acts directly on carcinoma cells by interfering with their proliferative function. To determine whether the x ray also have an indirect influence on tumor growth, six mice were subjected to preliminary treatment and later were injected with cancer emulsion, six other mice not previously treated being used as controls. The six untreated mice all developed tumors and died. Of the six treated mice,

three remained free from tumors, two had small necrotic tumors but lived, while one died. The indirect action of the x ray is proved, as the x ray was not applied after the injections of cancer emulsion or the beginning growth of the tumors.

November 12, 1914.

Gunshot Wounds of the Brain, by Otto Marburg and Egon Ronzi.—All tangential wounds which show a depression of the bone with the x ray, the presence of general constitutional symptoms and symptoms of prolapse remaining stationary should be operated on. All penetrating wounds in which the projectile lies superficially should be operated on. When threatening symptoms appear with deep seated projectiles operation may be undertaken, although the chance of success is very slight. Cases which show a prolapse primarily should hardly ever be considered suitable for operation.

Aneurysm, by von Haberer.—The thirteen cases observed were traumatic aneurysm, the wall of the bloodvessel being injured, the surrounding tissue forming the wall of the aneurysmal sac. Arteriovenous aneurysm is also seen. In deep seated arteries with a small sac the diagnosis is difficult. Symptoms of pressure may arise, as paralysis of the radial due to aneurysm of the axillary artery. The dangers of an aneurysm are from hemorrhage and gangrene, the latter, however, being exceptionally rare. The factors influencing the time of operation are whether the main branch of an extremity is affected, as, for instance, the brachial, axillary or popliteal. The question of collateral circulation is important. When possible, sufficient time should be allowed to elapse before operation to allow collateral circulation to be established. When symptoms of pressure on the nerve appear, when hemorrhage occurs, and when the pain is very severe, operation should not be deferred. Infected aneurysms show hemorrhage, pain, and the other symptoms calling for operation more frequently than noninfected aneurysms. Ligating the artery proximally to the aneurysm does not help, as collateral circulation is quickly established. Ligating both distally and proximally gives better results. The best method is the suturing of the vessels. This, however, can not be done in infected cases and in diffuse lesions of the vessels.

Wounds of the Eye in War, by S. Bernheimer.—Wounds of the eye are relatively rare. The parts affected are the eye itself, the optic nerve, the muscles, or the cerebral portions of the optic tracts, through general injury to the brain. Most of the wounds of the eye are indirect ones caused by fragments of bone penetrating the eye, or by blunt injury.

November 16, 1914.

Continuous Bath in the Treatment of Phlegmons, by Riehl.—The fever is reduced in a few days, necrotic material is cast off, retention of pus is prevented, granulations appear promptly, abscesses perforate and infiltrations disappear. This treatment should prove of value in infected wounds. The difficulty is that few hospitals are equipped with the necessary water beds to maintain a continuous bath. One may be improvised by using a large white enamel bath tub and placing a sheet

under the patient so that he can be lifted into a second tub when it is desired to change the water. The temperature of the bath should be kept at about twenty-five to thirty degrees R. To prevent the rapid cooling of the water in the tub, the latter may be covered with boards and woollen blankets. This treatment can also be used in cases of bedsores.

Cholera and Vaccination, by Leopold Arzt.—Twenty-five cases of cholera were seen during a period of three weeks in the present war. The mortality was twenty-four per cent., equivalent to thirty per cent. of the cases that had been positively diagnosed as cholera after a bacteriological examination of the stool. Respiratory complications occur very often at the end of the infection, delaying recovery considerably. Rubbing the patients with spirit of camphor during the period of cramps, and for some time subsequently, and the subcutaneous, or better, intravenous injections of sterile salt solution, have helped greatly. If the patient survives the primary collapse, white clay is given systematically and two infusions of salt solution are given daily. The stronger salt solutions up to 1.5 per cent. have given better results than the normal, physiological salt solution. Three cases showed an exanthem which appeared on the twelfth, sixteenth, and eighteenth days respectively. This exanthem was probably due to the toxic action of the bacilli. Two prophylactic injections of cholera vaccine were given to a nurse at five day intervals. The day following the first injection, she came in contact with cholera patients. Six days later she had a mild case of cholera, the bacillus being demonstrated in the stool. The administration of tannin enemata and white clay brought about a cure within five days.

November 26, 1914.

Circular Suture of the Common Carotid Artery, by H. von Haberer.—Seventy-five cases of aneurysm after gunshot, were treated by ligation of the vessel; nine patients died, nine had gangrene and fifty-seven were cured. Bad results, including deaths and complications, were twenty-four per cent. Of thirty patients treated by suturing the vessel, three died, five cases were not successful, a percentage of untoward results of 26.5. Up to the present time the ligation method has been the method of choice, suture being performed only in cases of necessity. An example of this is seen in aneurysm of the common carotid. The author reports a case of a spurious arteriovenous aneurysm of the right common carotid artery in which he made a circular suture. Collateral circulation had not been established as when the clamps were applied the right side of the face became ghastly pale and there was no bleeding. Following the operation the artery remained permeable and the result was very favorable, although a large piece of arterial wall had been resected. It is a good plan not to tie all the sutures primarily. Some of them should be tied and the remainder allowed to stay in place and should be tied later when the others are under tension. In this way the adaptation of the intima is very satisfactorily obtained. The most critical part of the operation is after the suture has been completed and the lumen of the vessel expands for the first time.

Splenectomy in Pernicious Anemia, by von Jagic.—Three cases are reported. In one, eleven months after splenectomy, there was edema of the legs with an increase in weight. The blood picture showed a color index slightly higher than normal, moderate poikilocytosis, few megalocytes and erythrocytes.

BULLETIN DE L'ACADÉMIE DE MEDECINE.

November 17, 1914.

Use of Trioxymethylene Gauze in Surgery, by Pauchet and Sourdat.—Having become convinced of the utility of trioxymethylene (polymerized formic aldehyde) in the sterilization of operating gloves, drains, sounds, scalpels, needles and suture material, all of which are aseptized as efficiently by this method as in the autoclave, and with less wear and tear, the authors have recently been trying trioxymethylene gauze in the treatment of wounds among the French soldiers. The results showed this form of gauze to be superior both to aseptic and to iodoform gauze. The gauze was prepared by placing ordinary (nonsterilized) gauze in a glass jar or tin box with a few tablets of trioxymethylene and keeping the container near a stove or radiator at a temperature of about 50° C. for an hour. The resulting material is both aseptic and bactericidal, and tends to prevent suppuration and discharge in wounds. In through and through wounds of limbs in which infection is suspected, the overlying bridge of tissues is, where possible, cut through, some of the gauze placed in the linear excavation thus formed, and a dry dressing applied; five days later the gauze is removed and a superficial dressing alone used. In compound fractures believed to be infected, the wound is opened up and wicks of the gauze are introduced in all the deeper recesses found. After amputation through infected tissues in cases of fracture with gas bacillus infection and gangrene, or where destruction of tissues has been too great to warrant conservative treatment, the wound is covered with trioxymethylene gauze and the patient can then be transported to the receiving hospitals in the rear with the expectation that at the dressing five or six days later, the wound will be found in excellent condition and the general state good. In the aftertreatment of skull wounds requiring trephination results far superior to those previously obtained were noted when trioxymethylene gauze was used in packing the openings made.

PRESSE MÉDICALE.

November 5, 1914.

Treatment of Asiatic Cholera, by L. Lagane.—Stress is laid on avoidance of opium in cholera. In mild forms, Lagane's treatment includes absolute rest in bed and a diet consisting of pastes, light broths, and weak tea. The oral administration of tincture of iodine in three to five drop doses and of lactic acid is also referred to. High colonic lavage with two litres of tepid sterile water containing tannic acid is another measure advised. In the typical, severe forms of cholera, the treatment recommended includes warm baths—up to 41° C. (105.8 C.)—warm packs, hot water bottles, and vigorous rubbings, to keep up the peripheral temperature; ice water or chloroform water, to control

vomiting, and saline hypodermoclysis or intravenous infusion—1.5 to two litres—with the addition, where indicated, of 0.25 to 0.5 gram of caffeine to the saline solution. Injections of camphorated oil or of a mixture of six parts by volume of camphorated oil with four parts of ether also constitute a useful measure. Fronin and Rousky having recently shown salts of lanthanum and of thorium to be of therapeutic value in experimental cholera, Lagane believes the administration of the sulphate of either of these metals in the dose of two to four grams a day in two per cent. solution to be worth a trial in the human subject.

RIFORMA MEDICA

November 28, 1914

Experimental and Parasitological Researches in Leucemia, by C. Martelli. The supposed specific parasites of Löwit, Aüer, Pröscher and White, etc., were studied in blood culture, and after injection of leucemic blood into laboratory animals. As a result none of the foregoing parasites is specific, and, in fact, no known parasite can be called specific. He found in the blood and organs of leucemic patients, staphylococci, streptococci, and tubercle bacilli. Injection of leucemic blood and material into animals did not produce the disease, but only a transitory leucocytosis.

Canalization of a Urethra Completely Stenosed by a Traumatic Cicatrix, by R. Altobelli.—He describes a case of a young man aged twenty years, who had fallen astride a spiked iron railing rupturing the bulbous urethra. At the time of the accident, the wound was merely sutured, and allowed to heal without the introduction of a catheter. As a result the patient was unable to pass urine, and another physician was called who found enormous distention of the bladder, and did a suprapubic puncture, through which urine was passed for a year. On admission to the hospital, it was found impossible to pass even the most slender catheter as a guide, therefore recourse was had to retrograde catheterization through the suprapubic opening. With a Thompson staff the urethra was canalized from above and below, the two ends of the instrument being approximated by a silk suture. A steel catheter was sutured in place, and drainage with daily lavage kept up for three weeks. The catheter was irrigated from within outward, and later a Nelaton catheter was substituted, and then the suprapubic wound allowed to close. A perfect result was obtained, which seemed to promise a permanent cure.

BRITISH MEDICAL JOURNAL.

December 5, 1914

Acute Appendicitis and Acute Appendicular Obstruction, by D. P. D. Wilkie.—Both animal experiment and clinical observation have led Wilkie to the conclusion that acute appendicular obstruction is by far the more serious of the two conditions and that its presence can be diagnosed with reasonable certainty from the symptoms. The clinical picture is ushered in by pain, coming on suddenly, and being first localized in the umbilical region. It may be either intermittent or constant. Both appendicular tenderness and rigidity of the

right rectus muscle are constantly present, though often very slight. Neither the pulse rate nor the temperature is of any diagnostic value, usually not being abnormal, but at times being increased. When this is the case it is indicative of an infection of the wall of the appendix. Intestinal paresis does not usually occur in this condition, hence the bowels may act with or even without the aid of a cathartic. The greatest number of fatal cases of acute appendicular disease are those of appendicular obstruction and it is of the utmost importance for the clinician to recognize the condition at the earliest possible moment, as delay is almost certain to lead to peritonitis. As the result of animal experiment the interesting observation was made that obstruction was followed by the most severe and rapidly fatal symptoms from gangrene when the obstruction took place in the gut filled with fecal contents. It was also shown that the gangrene was more rapid under these conditions when the animal had been fed on a rich protein diet than when fed on carbohydrates. From these observations and an analysis of the incidence of appendicitis in different races and regions, Wilkie is led to the belief that the rich protein diet of city dwellers and civilized races largely accounts for the greater frequency of appendicular lesions in them than in others, and also for its more fatal form. The same explanation holds for the greater frequency and severity of the disease in the male sex and in the active period of adult life.

Epilepsy and Cerebral Tumor, by William Aldren Turner.—From considerable experience the conclusion is reached that cerebral tumor in any of several regions of the brain may produce symptoms indistinguishable from those of idiopathic epilepsy. These symptoms may last for several months up to sixteen years before focal symptoms appear to render the diagnosis of tumor possible, though a careful study of the seizures with particular attention to their premonitory symptoms and the associated phenomena may lead to a suspicion of the true nature of the case. More especially is tumor to be expected if the attacks begin late, between the ages of twenty-one and thirty-two years, and if the individual fits tend to alter in character as the disease advances. Examination of the tendon and other reflexes and of the eye grounds may also lead to a suspicion of the presence of a tumor as the underlying cause of the epilepsy.

December 2, 1914.

Artificial Pneumothorax, by H. de Carle Woodcock and J. A. M. Clark.—Except for the more advanced cases one day of rest in bed is enough before the first operation. For the prevention of shock the patient should receive hypodermic injections of quinine and urea hydrochloride and of morphine and atropine the night before, and immediately preceding the operation the site should be anesthetized with an injection of novocaine and adrenaline so given as to anesthetize both the skin and the deep tissues. Following this another injection of quinine and urea hydrochloride should be given. Unless contraindicated by the presence of pleuritic adhesions, the injection of gas should be made in the middle axillary line at the level of the nipple.

Otherwise it is given in some suitable resonant area. In the early unilateral cases the operation is easy, but is likely to be associated with severe shock, and every possible precaution against this occurrence should be observed. In extremely nervous patients one should only go as far as anesthetizing the site on the first occasion, proceeding to the actual insertion of the needle on the second, and giving gas only at the third sitting. Where gas can be given at the first sitting, as much as 300 c. c. can be injected if the manometer shows an oscillation of an inch. If there is any doubt as to the proper insertion of the needle not more than thirty c. c. should be injected. Following the injection the patient should lie still for half an hour, and then be returned to bed. Even under all of these precautions shock is occasionally observed in this type of patient, and the escape of a little gas through the needle is the most immediate way of relieving it. In cases of moderate severity the shock is far less marked owing to the presence of pleuritic adhesions and the consequent reduced liability of the heart to displacement. In these cases the first injection should not exceed fifty c. c. of gas and not more than three inches of water pressure should be employed for its introduction. In severe cases of bilateral disease the dangers are no longer those of shock, but result from the possible reduction of the remaining lung space to a point below that required for life. But even in these cases pneumothorax sometimes gives the patient his only remaining chance of life. Only in cases of dangerous hemoptysis can the preceding precautions be disregarded, and here the injection of gas should be made at once and in amounts sufficient to control the bleeding, even up to 1,800 c. c. at the first operation. These directions and precautions are the result of an experience of over 2,000 pneumothorax operations conducted by the authors.

LANCET

December 12, 1911

Insomnia and Suicide, by C. Ernest Pronger.—One of the commonest causes of suicide is the suffering of obstinate insomnia. Although little or no mention is ever made of the relation of refractive errors to the production of insomnia, this has been found by the author to be one of the most frequent causes of the condition, if not, indeed, the most common of all. It is not the gross errors which so often lead to insomnia, but rather the slight ones, such as do not lead to such visual defect as to demand the wearing of glasses for their correction. The causative relation is simple; the refractive error leads to a continual effort in the use of the eyes which produces a cumulative nervous strain, and the latter is reflected in sleeplessness. The proper correction of the refractive error promptly restores the nervous equilibrium and the insomnia is cured. That this is actually the fact is abundantly shown by the cases reported by the author. It has been sought to discover certain hereditary relationships as underlying causes of insomnia, and in the opinion of Pronger these are both common and simple, consisting of the well known inheritance of visual defects—chiefly slight degrees of astigmatism—and of the nervous temperament. The correction of the

visual defect prevents the manifestations of the nervous temperament. It is the duty of the practitioner to have any patient with obstinate insomnia submitted to a careful ophthalmic examination.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

November, 1914.

Intestinal Stasis.—Max Einhorn argues strongly against the employment of ileocolostomy or colectomy except in cases of cancer or stricture of the bowel. He says: Our organism is not so poor an engine as it is depicted by the adherents of the stasis theory. If our body is resourceful in adequately fighting enemies that it has never before encountered, how much more must we expect from it for everyday defenses. It is surely well fitted to debar the entrance of harmful digestive products through the intestinal wall, for this is a continuous happening.—Alexander McPhedran believes that treatment should aim at restoring the peristaltic power of stimulating laxatives, food containing much residue, and massage of the abdomen. Two classes of patients will require surgical aid: Those with organic obstruction, and those who cannot secure the necessary care and supervision, or cannot take the necessary time, but he thinks that the time required will not in the end be greater than that necessary for relief by surgical means.—A. Primrose remarks that intestinal stasis may produce serious impairment of health. The manifestations of disease dependent on this cause may present great variety. There may be multiple lesions; the primary trouble is often in the ileocecal region and secondary trouble may develop in the stomach, duodenum, etc. Secondary trouble may be an anatomical lesion, like an ulcer, or it may be purely a functional disturbance without any gross lesion. Where ill health caused by intestinal stasis resists ordinary medical treatment, surgical intervention of suitable character should be undertaken.—J. M. Elder holds that there are different forms of stasis requiring different methods of treatment, so that it is impossible to meet all cases with one method. To overcome acute angulation of the splenic flexure of the colon, causing stasis in the proximal part of the colon and also delaying the ileac effluent from back pressure upon the ileocecal valve, a lateral anastomosis between the transverse colon and the upper part of the sigmoid loop is indicated. To overcome stasis in the ileum due to extensive adhesions, an anastomosis may be made between a loop of the ileum and the transverse colon. He has done ileosigmoidostomy in three cases, but believes that the diseased bowel will have to be removed to secure a cure. He has never seen permanent improvement after separating or removing adhesions or kinks, as they are apt to reform and to make the condition worse.—F. N. G. Starr believes the kinks and bands to be congenital and found this belief confirmed by an autopsy on a baby two days old.—Lewis Gregory Cole says that ileac stasis does occur, but not as frequently as some seem to think. Its presence is due to, or associated with, colonic stasis and dilatation of the ascending colon, pericolic veils and membranes, kinks of the terminal ileum, insufficiency of the ileocecal valve, and chronic appendicitis, before or after the removal of the appendix. The use of röntgenographs as a

weapon with which to urge surgical procedure for some preconceived diagnosis should be vigorously condemned.

INDIAN MEDICAL GAZETTE.

November, 1914.

Asylum Dysentery, by P. Heffernan.—The means by which we may hope to eradicate dysentery from asylums are: Isolation of all carriers, until they cease to be such, which in chronic cases usually means for the remainder of their lives; immunization by inoculation of persons who have been exposed to infection; and adoption of the most reliable and up to date sanitary methods for the preparation of food; prevention of contamination of food and water, disposal of excreta and sewage, and general hygiene in housing and clothing. He has not found prophylactic inoculation successful as yet.

Treatment of the Earlier Stages of Senile Cataract, by Henry Smith.—The diagnosis of the earliest stage of cataract does not seem to have received the attention it deserves, partly because the ordinary patient pays little or no heed to deteriorating distant vision as long as his near vision is good. The author worked among people who have cataract at an earlier age than with us, and he has had opportunities that are not given everyone to deal with classes whose distant vision is of prime importance. He maintains that the first symptom of senile cataract is a failing of distant vision with nothing else; when it has not fallen below 6/10 we seldom observe any opacities in the lens, that at 6/12 we may find sand like opacities or striæ, central or peripheral, while above 6/12 we nearly always find them. These early cases he believes to be amenable to nonoperative treatment. The treatment advocated in such cases, the eye supposed to be otherwise sound, but with vision reduced to 6/8, 6/9, or 6/10, is to inject subconjunctivally twenty-five minims of a one to 4000, 5000, or 6000 solution of cyanide of mercury. The strength of the solution is chosen according to the age of the patient as the younger he is the stronger the solution required to produce a standard reaction. His experience is that the vision returns to 6/6, or even 6/5 within a month from the time of the injection. Some of the cases date back as long as three years, and are known to have excellent distant vision, so the effect would seem to be permanent. He does not think cyanide of mercury a specific agent; the same result could be obtained from other agents that would produce a similar amount of reaction. He is inclined to look upon the dietary as the remote cause of senile cataract, and to consider the proximate cause to be a disturbance of the mechanism of some of the glandlike cells of the ciliary region by which the nutrient fluid of the lens may be manufactured. When definite opacities have appeared in the lens he urges immediate intracapsular extraction, and speaks very strongly against a ripening operation.

Prevention and Treatment of Septic Wounds in Warfare, by F. W. Sumner.—The natural autogenous vaccine treatment made use of by animals is particularly applicable to wounds received in warfare. No antiseptics are to be placed on the wound. The patient should suck the wound every two hours for three days, swallowing the juices. Any foreign

body should be taken from the wound and chewed for five minutes. When the mouth of the wound is small and tends to close it must be kept open by a drain. When it is so situated that it cannot be sucked a clean wet rag should be placed on it for two hours, then taken off and chewed. Nothing but boiled water is to be used to clean the wound. Another method is to remove the dressing twice a day, place in sterile saline for twelve hours, filter, and inject one c. c. of the filtrate subcutaneously; two fresh injections being prepared daily. This entire line of treatment is that suggested by Duncan.

BOSTON MEDICAL AND SURGICAL JOURNAL

December 17, 1914.

Critical Defervescence in Typhoid Fever, by Edward J. Wood.—Crisis in typhoid is not to be dreaded, because it is not attended with any dangerous depression and leaves the patient in good condition. It usually occurs after a high run of temperature in cases of severe toxemia, and always arouses suspicion of an accident, especially as it ordinarily happens at that period of the disease when accidents are more prone to occur.

Present Status of Crotalin in the Treatment of Epilepsy, by D. A. Thom.—The author previously opposed the theory upon which this treatment was based, i. e., the definite relation between convulsions and the rapidity of the coagulation of the blood in epileptics. In this paper he reports the results obtained in his own cases, together with those obtained from other epileptic institutions in this country. Only a small percentage of the patients were improved, a very much larger percentage were made worse. There seems to be no relation between the amount of drug given and the local and systemic reactions, even in the same person, and some very unusual reactions were obtained. This may be accounted for by contaminated preparations, by the destruction of the bactericidal properties of the blood by previous injections, or by the impossibility of obtaining a standard solution, as Noguchi has shown that the loss of weight in drying the crude snake venom is from twenty-five to fifty per cent. But in Germany, Fachenheim has opened an institution and published remarkable results.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

December 19, 1914.

The Syndrome of Adrenal Insufficiency, by T. A. Williams.—This paper was abstracted in our issue for June 27th, page 1306.

Papilloma of the Larynx, by Harmon Smith.—This paper was abstracted in our issue for July 4th, page 54.

The Neglect to Provide for the Infant in the Antituberculosis Program, by A. F. Hess.—Tuberculosis is largely acquired in early life, and unless infection is properly guarded against, there is no basis for any hope of eradicating tuberculosis in succeeding generations. At present the means employed for accomplishing this end are totally inadequate. The particular remedy recommended is the establishment of preventoriums for infants. To make a beginning, it may be advisable to assign certain wards in existing institutions, rather than to create new preventorium institutions; for in this

way it would be feasible, in many instances, to have infant and mother in the same institution. The infants could be adequately cared for near the city, and in cases where the mother was separated from her child she would have the opportunity of visiting it when she desired. At the outset, preference might be given to urgent cases, to infants surrounded by open tuberculosis, to cases in which a tuberculous mother is obliged to remain at home to care for her infant, or in which there are two or more members of the family suffering from the disease. The minimum stay might be provisionally fixed at one or two years.

The Heart in Acute Infections, by R. N. Willson.—As to the treatment when cardiac involvement occurs, it is advised that in the acute illness there should be the most perfect possible rest, and the saving of every unnecessary contraction of the heart. At first an empty, and, for a short time, a gastrointestinal tube as sterile as possible are essential, instead of the common attempt to feed and overnourish. Drugs, except opium and possibly atropine, are of questionable value. If employed at all, they should be remedies of a sedative rather than a stimulating character, and it may be that even the cardiac sedatives and tonics had better be omitted. Convalescence and the year following the acute illness constitute the most difficult period; if the heart muscle and endocardium are to be conserved, it is of the greatest importance that all localized foci of infection should be removed from the body. The heart's capabilities must be very carefully tested before the physician relinquishes the case. Long after the acute attack the cardiac muscle may betray a latent disability which has escaped detection, and that patient is fortunate who enjoys a full convalescence and a life of uninterrupted health following the damage sustained by the heart structures in infectious diseases of an earlier age.

Latent Atypical Malaria Complicating the Puerperium, by M. J. Seifert.—A case is reported which is of special interest since no similar one has been found in medical literature. The patient, who was the subject of chronic nephritis, had never lived in a strictly malarial locality, but in two consecutive confinements she suffered from irregular chills and fever, and never at any other time, while there was no pelvic involvement and in the second one the presence of large numbers of the parasites of the tertian variety of malarial fever in the blood was demonstrated.

Treatment of Hydrocele; with Special Reference to Phenol Injections, by R. H. Herbst.—Barring those effusions into the tunica vaginalis which accompany the acute infections of the epididymis and which usually disappear as the acute process subsides, it is contended that the results following tapping and injection of phenol are as good as those observed after any of the open operations, provided that the sac is thoroughly washed with sterile water after the serum has been evacuated and previous to the phenol injection. When this course is pursued recurrences are very rare. Considering the underlying pathology of many cases of hydrocele, it is the author's belief that open operation for this condition is usually unnecessary and frequently contraindicated.

Antistreptococcus Serum in Chronic Arthritis, by H. K. Nicoll.—Under present conditions the use of serum is regarded as neither advisable nor justifiable, an opinion based upon the following facts: The administration of horse serum in repeated doses may be followed, in twenty-five per cent. of the cases, by dangerous degrees of anaphylaxis; heating and aging the serum does not completely remove its toxicity; clinical observation and the estimation of immune bodies do not show any added advantage from the use of an antiserum in chronic arthritis, even when a concentrated serum of much greater potency than the usual commercial serums is employed; attempts to increase the value of such a serum by concentration have not been successful, so far as its employment in chronic arthritis cases is concerned.

MEDICAL RECORD.

December 10, 1914.

Gunshot and Shell Wounds, by P. C. Fauntleroy.—Observations among the Bulgarians, and later among the Turks, confirmed his belief, from previous experiences in the Spanish-American war, that a medical officer of a moving command cannot depend on having any medical or surgical supplies on the battlefield in time other than those which he carries on his immediate person; he should therefore be provided with a pocket case containing the requisites. The modern method of treatment of gunshot injuries in the immediate rear of the firing line permits little more than sterilization of the skin, wound, and protruding bones with tincture of iodine, or corrosive sublimate solution, and a sterile dressing. If there is a bone or joint injury, or if the soft parts are extensively involved, there should be a reduction of the deformity, so that the part can be properly immobilized. Hemorrhage should, of course, be arrested, and shock and pain be relieved by means of strychnine and morphine. If the surgeon's orderly, with his large pouch or the small hospital corps pouch, is at hand, there will probably be ample bandages and splint material, and, in addition to the supplies of the surgeon's little case, nothing else is needed in the vast majority of instances. There are many wounds of the face and trunk which, after sterilization, can be securely occluded by means of small pieces of gauze or absorbent cotton, with flexible collodion or strips of adhesive plaster. At the hospital the patient should be thoroughly examined, cleansed, have his bodily needs supplied, while indicated measures should be carried out, such as redressing, disinfection, and drainage, removal of foreign bodies and loose fragments of bone, excision, amputation, laparotomy, appropriate treatment for hemorrhage, aneurysm, etc.

Infant Feeding with Top Milk, by J. M. Mabbott.—Top milk is preferable to milk and cream because, first, cream is very expensive, and, second, in New York city cream is at least a day older than the regular supply of bottled milk. When we take out one pint of top milk from a quart bottle we are still getting a milk containing from six to eight per cent. of fat, and top milk, when properly diluted, will therefore enable one to secure approximately the desired percentages of fat. A chart is given

for top milk mixtures, and the whole problem of feeding is regarded as quite simple. Starting at the age of one week with five ounces of top milk and ten ounces of water, the amount of food is increased once a week by adding an extra ounce of top milk, and also of water, in the daily quantity. At the sixth week ten ounces and fifteen ounces, respectively, will have been reached, and at seven weeks the daily quantity is eleven ounces of top milk and just a pint of water. After the seventh week the quantity of water remains stationary. The quantity and strength of the food are continually increased by our going each week deeper into the bottle, for an extra ounce of milk, and at twelve weeks exactly one pint of top milk is being taken out of the quart bottle. From now on the quantity of top milk remains stationary, and thereafter until the baby reaches the age of twenty weeks, the food allowance is simply increased once a week by adding one ounce of whole milk to the daily quantity. Approximately the same increase of whole milk is, indeed, the only change for a much longer period, but usually it is advisable to increase the whole milk a little more rapidly; reaching the total quantity of three pints at the age of six months—this representing an increase of eight ounces, instead of six ounces, in the last six weeks. Suitable quantities of sugar, salt, and lime water should be added to the infant's food as indicated. Unless raw milk is used, the tendency to rickets and scurvy should be borne in mind. The latter may be specifically overcome by giving the child a little orange juice two or three times a week.

New Method for the Control of Postanesthetic Nausea, by J. E. Lumbard.—Having become convinced that the prime factor in such nausea is the smell of the anesthetic, he has devised the following method for its prevention: A square piece of adhesive plaster, with a small prolongation in one corner, is folded over a roll of gauze of eight or ten thicknesses, about two inches long and half an inch wide, and this appliance is fastened to the nose with the prolongation in such a way that the free end of the gauze extends slightly beyond the tip of the nose. Immediately after the anesthetic is withdrawn (the head being elevated and drawn to one side) a little perfume is dropped on the end projecting beyond the nose. In the selection of the perfume it is advisable to consult the patient; oil of bitter orange peel has been found the most generally satisfactory. The method has been tested in many cases, and it is stated that in a large majority of instances, nausea and vomiting will by means of it be greatly reduced, if not entirely prevented.

AMERICAN JOURNAL OF TROPICAL DISEASES AND
PREVENTIVE MEDICINE.

November, 1914

Treatment of Leprosy by the Hypodermic Use of Chaulmoogra Oil Mixture, by Victor G. Heiser.—A detailed description of the treatment of nine cases of leprosy, with the results obtained, is given. In all these cases the treatment had been begun in February, 1912. One patient apparently recovered, with complete disappearance of lepra bacilli; in four, clinical evidence of the disease practically disappeared; in three, there was marked improvement, and in one, but slight improvement. The mixture

used consists of chaulmoogra oil and camphorated oil, of each sixty c. c., and resorcinol, four grams, the latter constituent being dissolved in the mixed oils with the aid of heat on a water bath and the mixture then filtered. Injections of the mixture were made at weekly intervals, the dose ascending from one c. c. to the point of tolerance, which was found to vary considerably in different cases, some showing marked reactions in the leprosy lesions, with fever and cardiac distress, from doses of only a few c. c., while in others ten c. c. doses could readily be given. Sometimes it was found preferable to give relatively small doses and inject at shorter intervals than that mentioned. Injection of the mixture into large leprosy deposits or division of the dose by injecting it into several small infiltrations seemed to hasten the beneficial effects of the treatment. No strychnine was given, but saline purgatives were freely employed, and half hour tub baths in hot two per cent. sodium bicarbonate solution every other day were ordered, apparently with advantage where the baths were regularly taken. The treatment seemed equally efficacious in the hypertrophic, anesthetic, and mixed forms of leprosy. The author was struck by the large percentage of cases in which scabies preceded the onset of leprosy.

Diagnosis of Leprosy, by D. Rivas and Allen J. Smith.—Three methods of proving the presence of the disease by detection of the causative micro-organism were found of service. In examining suspected nodules the frozen section method gave the best results, the section being fixed to a slide with thin celloidin, treated with four per cent. formaldehyde solution, washed, and stained with carbol fuchsin and methylene blue. The second method used consisted in collecting secretions from the nasal mucosa with a swab, fixing them to a slide, and staining as in the previous method. In case of doubt as to whether organisms detected are those of leprosy or tuberculosis, injection of some of the material into a guinea pig is advised, when, if tuberculosis exists, characteristic lesions will usually appear after a month, while a negative result is the rule in leprosy. The third procedure, to which the authors pay most attention, is the direct examination of the blood for *Bacillus lepræ*. In their patients blood was collected from a finger as well as from a vein of the forearm, 0.1 to one c. c. of it mixed with one to ten c. c. of two per cent. acetic acid previously passed several times through a porcelain filter, the mixture shaken and centrifugated for ten to fifteen minutes, and smears made from the sediment. In each instance the lepra bacillus was found in the smears, singly, in pairs, or in masses or bundles, free or enclosed in white blood cells. The results showed that *Bacillus lepræ* is available for diagnostic detection in blood collected from tissues apparently normal and from which the organisms are usually absent on section.

ARCHIVES OF INTERNAL MEDICINE

November, 1914

Typhoid Immunization, by F. P. Gay and E. J. Clappole.—The history of artificial immunization against the typhoid organism is reviewed, and an efficient method of testing typhoid immunity in the rabbit described. This method was found well suited for ascertaining the exact immunizing value of

various antityphoid vaccines. As a result of their tests, the authors strongly recommend for prophylactic immunization in human subjects three injections at two day intervals of the sediment of a dried, ground culture—sensitized by the addition of a definite amount of immune rabbit serum—of several local strains of the typhoid bacillus. The proper dosage is put down as 3/32 mgm. of the original dried culture, this corresponding to about 750 million living typhoid bacilli. Results obtained with the typhoidin skin test, recently described by Gay and Force, in the prognosis of typhoid fever are also mentioned. The reaction was positive in ninety-five per cent. of recovered cases of typhoid, and was proved to indicate an interaction of antigen and antibody, the presence of the latter implying immunity to the disease. A negative skin test after antityphoid vaccination is regarded as indicating revaccination.

Hexamethylenamine as a Urinary Antiseptic, by L. H. Levy and A. Strauss.—A report of investigations of the urine in ninety-one cases in which hexamethylenamine was used as a urinary antiseptic is given. Tests as to the effect of hexamethylenamine solution on various microorganisms *in vitro* were also made. The drug in neutral solution in concentrations up to one in ten was found to be neither antiseptic nor bactericidal. Given by mouth it was observed to break down, with liberation of formaldehyde, in all acid urines when the dose used was seven and a half grains three times a day. In all cases except those with a urinary acidity greater than normal, formaldehyde was formed in the bladder, and in the high acidity cases, some was formed in the kidneys. It was found that the concentration of formaldehyde necessary to inhibit the growth of the colon bacillus is one in 5,000. Upon giving seven grains of the drug three times a day, formaldehyde is never liberated in concentrations greater than one in 5,000, and the only organism against which such a dose is effective is the typhoid bacillus. Hexamethylenamine appeared to the authors most efficacious as a prophylactic against pyelitis or cystitis in typhoid fever.

Blood Platelets and Tuberculosis, by G. B. Webb, G. B. Gilbert, and L. C. Havens.—An experimental and clinical study of the relationship of the blood platelets to tuberculosis is reported. The number of platelets was found increased in tuberculosis in both man and the guinea pig. The experiments tended to show that the platelets either contain or supply opsonin. Addition of a small amount of a thick emulsion of platelets to a fatal dose of tubercle bacilli seemed to modify the course of a tuberculous infection or even to prevent it. At an altitude of 6,000 feet the number of platelets was found increased both in man and the guinea pig.

Pulmonary Physical Signs and X Ray Findings in Healthy Adults, by L. Hamman and F. H. Baetjer.—Fifty apparently healthy students and physicians were subjected to a careful physical examination of the chest. The pulmonary physical signs were found definitely altered in thirty instances, more obviously altered in seven and greatly changed in two. X ray examination yielded confirmatory findings in a large proportion of cases.

The conclusion is reached that slight pulmonary apical abnormalities, as isolated facts, by no means justify a diagnosis of lung tuberculosis, acquiring importance only when supported by other evidence.

ARCHIVES OF THE RÖNTGEN RAY

December, 1914

Simple and Rapid Method of Localizing Bullets, by Francis Hernaman-Johnson.—This method does not require the use of special apparatus nor the taking of radiographs. Patient is placed on a couch with the focus tube beneath. The x ray is turned on with a widely open diaphragm and the position ascertained by the fluorescent screen. The aperture is narrowed and the tube moved so that the image comes into the centre of the field. This is continued until the illuminated patch is no larger than one inch in diameter. The image of the bullet is now vertically above the bullet itself. A metal ring having an internal diameter of two thirds of an inch and fastened to a wooden handle is slipped under the screen and moved about until its shadow encircles that of the bullet. A mark is made on the skin with nitrate of silver in the centre of the ring, but the ring localizer should not be displaced. The ring is now slipped between the patient and the couch, the encircling position again found and a mark made on the lower aspect of the thigh. This should be found vertically below the first mark.

Comparison of X Ray and Radium in the Treatment of Malignant Growths, by John MacIntyre.—The site and the depth of the disease determine the agent to be used. By means of special tubes the larynx and trachea can be treated. The condition of the patient and the history of the case also help to determine the best agent. In cases with secondary glandular enlargement, the x ray tube is probably the best because large doses, accurately measured, can be given. From the mechanical standpoint the form of the agent is of importance. Radium can be used with advantage in the depth of a large tumor in the form of an emanation tube. The patient's health must also be considered in determining the agent. In weak patients an application of radium may be made daily for one to three days and then treatment suspended for two to three weeks. The involved tissues are also a factor in the selection of the agent. Lastly, the question of expense involved in the purchase and use of radium also has a bearing on the choice. Radium has the advantage over the x ray in the collection of an emanation. Radium emanation tubes can be transported and further, they can be shaken so as to apply the emanation to the surface or into the depth. This is the supreme advantage possessed by radium.

Diathermia in Medicine and Surgery, by E. P. Cumberbatch.—It is used in the form of diathermia cautery, in which the tissues are coagulated *in situ* by being raised to an extreme heat, brought about by the passage of the diathermia current through them. As the heat is generated in the tissue itself, it is not limited in extent as when supplied by a metal cautery. In diathermia the electrode is cold when placed on the tissues and becomes warm from contact with the electrically heated tissues. In the other methods, the cauterizing metal is hot when in-

troduced and becomes cold in contact with the tissues. The temperature obtained during diathermia will destroy both healthy and diseased tissues if they are present in the same zone. In the outlying zones the abnormal cells may succumb to a temperature not sufficient to impair the vitality of the healthy cells. In this way it may have a selective action on outlying cells of new growths that have infiltrated healthy tissue.

Proceedings of Societies.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Fortieth Annual Meeting, Held at Cincinnati, October 27, 28, and 29, 1911.

The President, Dr. D'ORSAY HECHT, of Chicago, in the Chair.

Factors Which Determine the Advisability of Prostatectomy.—Dr. WILLIAM F. BRAASCH, of Rochester, Minn., concluded: 1. With stone in the bladder it was usually advisable to remove the stone and drain the bladder for a time prior to prostatectomy. 2. Stone in the bladder might cause temporary enlargement of the prostate. 3. Pyelonephritis was a frequent complication of bladder drainage and a strong resistance should be established before attempting operation. 4. The renal condition was better estimated prior to operation by clinical evidence than by laboratory tests. 5. Cystoscopic examination, while valuable in a certain condition, might be the cause of harm if used as a routine procedure. 6. Urethroscopic examination was occasionally of greater value than cystoscopic examination. It was particularly valuable with intraurethral hypertrophy and with carcinoma.

Hemolysis Following Transfusion of Blood.—Dr. BERTRAM B. BERNHEIM, of Baltimore, having had one fatal case of hemolysis following an emergency transfusion of blood and one nonfatal case following a transfusion for therapeutic purposes, sent out a question form to various men throughout the country with the view of ascertaining just how frequently hemolysis did occur following transfusion, and what were the consequences. Briefly, he found that in 800 reported transfusions there were fifteen instances of macroscopic hemolysis, an incidence of about two per cent. In these fifteen cases there were eleven recoveries and four deaths. No hemolytic tests were made in three of the instances where death occurred, although there was plenty of time to do so in two of the cases. The third was Bernheim's own case, which was a post-operative emergency where there was no time. In the fourth death tests were made, and it was known that the "donor's cells were slightly agglutinated by the patient's serum," but since agglutination was an entirely different process from hemolysis, and since no other donor was available, it was considered fairly safe to use this donor, and a fatality occurred.

Tests were made in eleven of the fifteen recoveries, and in nine instances hemolysis was prognosticated. That there were no fatalities in this group was considered almost a miracle, as he felt that his study showed and proved the value of the blood tests. He divided the dangers of transfusion into

the immediate and the late or delayed dangers. The first or immediate was acute dilatation of the heart consequent upon an inflow of blood of such force and rate that the recipient's heart was overwhelmed. A definite train of signs and symptoms indicated such a condition, which could always be recognized and avoided by the careful operator, especially if he was experienced in this line of work.

The late or delayed danger was that of hemolysis, which could be prognosticated in practically every instance by careful tests prior to transfusion. In the emergencies no thought should be given to hemolysis or anything else. Far better was it to transfuse immediately and save a patient from imminent death, running the slight risk of a late hemolysis, than to temporize with tests which required at least two hours, even under the most propitious circumstances, for their proper performance, during which time the last flicker of life might disappear. Where, however, there was time, and in the majority of instances such was the case, failure to have the tests done was an inexcusable blunder. The majority of bad results were not reported, and he knew of numerous instances of hemolysis which, for one reason or another, he could not include in his study. So that, instead of an incidence of two per cent., the true incidence of hemolysis would probably be at present nearer four per cent.; and practically all of it could be prevented.

Radium in the Treatment of Cancer of the Uterus.—Dr. J. LOUIS RANSOHOFF, of Cincinnati, said that radium was of undoubted value in cancers of the uterus, at any and every stage of the disease. The control of hemorrhage, discharge, and pain was undoubted. The radium had a beneficial local action resulting in the local disappearance of the disease, in every instance. The question as to whether radium had a permanent curative effect on cancers of the uterus must be left to the future to decide, as a large number of permanent cures was necessary before the claims of radium could be substantiated. The same might be said of the use of radium in operable cases. At present, if possible, radium should be used in all cases of inoperable cancers of the uterus when the patient was not in the extreme stage of emaciation and cachexia.

If the promises of radium in the treatment of cancers of the uterus were substantiated by permanent cures, radium might, in the future, entirely supplant operation, unless improved technic decreased the large operative mortality and promised a higher percentage of radical cures.

Renal Infections from a Bacteriological Point of View.—Dr. IRVIN S. KOLL, of Chicago, said that to consider properly the bacteriology of renal infections, one must take into consideration the various factors that acted as contributory to the passage of the pathogenic bacteria into the kidney. The relative importance of the now accepted three routes, lymphogenous, hematogenous, and urogenous, offered considerable interest. Their present definite knowledge of the lymph channels draining from the intestinal tract into the kidney readily accounted for the frequency of infections of the kidney associated with acute and chronic gastrointestinal disturbances. Infections through the ureter might be either extra or intra ureteral.

Of particular importance was the pyelitis asso-

ciated with pregnancy, the frequency of which was estimated as high as twenty per cent. by some obstetricians. Of late the route through the blood seemed to have been neglected in the consideration of the carriage of bacteria to the kidney. Its importance, however, should not be underestimated, as there could be no doubt that the circulatory system as a carrier of bacteria was of as great importance as the lymph stream. Three factors should be recognized in arriving at a diagnosis which would give a basis for a rational treatment: What was the contributing cause? What was the invading organism? What was the pathology—pyelitis, pyelonephritis, or pyonephrosis?

Experimental Studies in the Production of Chronic Gastric Ulcer.—Dr. WALTER W. HAMBURGER, of Chicago, believed that he had reproduced experimentally in dogs chronic ulcer of the stomach in a way strikingly similar to the clinical syndrome in man. While it was dangerous to draw parallels between artificial conditions in animals and clinical disease, in this instance certain conclusions seemed justifiable. If one was permitted to picture a human ulcer from the standpoint of these experiments, it might appear that slight abrasions of the mucosa, hemorrhagic erosions, or even small acute ulcers occurred frequently in the human subject; that these acute lesions might result from food traumatization, emboli, or bacteria; that under usual conditions these acute lesions healed promptly with little or no evidence of their having occurred. Under unusual conditions, however, for instance the presence of hypersecretion and hyperacidity from the underlying neurotic cause—vagotonia; or the presence of motor insufficiency from recurring pyloric spasm from swallowed toxic material and reflex pyloric spasm from disease of the appendix, gallbladder, or other organ; or the presence of delayed motility from low lying atonic stomach, enlarged liver or kidney; distended gallbladder, pancreas, or colon—under these unusual conditions these acute ulcers were prevented from healing and became chronic. As a matter of clinical experience such conditions were frequent attendants of chronic ulcer and were important causative and propagating factors. From this viewpoint they were of the utmost significance in prophylaxis.

Gastric and Duodenal Ulcer.—Dr. C. W. DOWDEN, of West Baden, Ind., reported a statistical study of 425 cases of gastrointestinal disturbances, in which a diagnosis of gastric or duodenal ulcer seemed warranted from a thorough examination, including the various laboratory methods and the employment of the Röntgen rays. Of this number, 170, or forty per cent., bore a definite relation to some infection, and he concluded that this was the chief etiological factor. The anamnesis and the röntgenological findings were the most important diagnostic methods, but the various laboratory procedures were valuable aids, particularly for outlining appropriate treatment. Ulcers passed through a stage which was distinctly medical, and if diagnosed at this time were amenable to treatment. Surgical ulcers were those that had involved more than one coat of the gastric mucosa and could always be demonstrated on the radiographs. Medical treatment at this time was worse than useless because the patient mistook temporary relief for cure, and finally suffered one of

the several sequelæ, the most frequent and serious of which was carcinoma.

In proof of the theory that pain was not a result of irritation by hydrochloric acid, he cited several cases and showed röntgenographs, in which all symptoms of ulcer were present, but the gastric analyses showed a total absence of hydrochloric acid. That pain was a result of hyperperistalsis and tugging on the peritoneum he thought was a more logical conclusion. A new era was dawning and further study would show that an active ulcer in its early stage was best treated by absolute rest to the stomach, by keeping it empty, and thus avoiding the possibility of carrying infections per os, controlling painful peristalsis by antispasmodics, preferably atropine, and by rectal feeding until the acute stage had passed. All foci of infection, no matter where situated, should be removed.

Dr. CHARLES D. AARON, of Detroit, in the treatment of gastric ulcer had found that when it was complicated by vagotonia, the treatment of ulcer plus the treatment of the vagotonia would give a better result than if they ignored the vagotonia, and by their present physiological and pharmacodynamic tests for vagotonia, which was easily done in ulcer of the stomach, they could then tell whether the neurotic process should receive treatment or not. This was one side of the question. All had had healed cases of ulcer of the pylorus, with contraction at the pylorus, stenosis of the pylorus, dilatation of the stomach, and the visible peristalsis recognizable when the stomach was endeavoring to empty itself, trying to overcome obstruction of the food, working backward and forward on the mucous membrane, endeavoring to get through the part, the patients vomiting, and, to relieve themselves temporarily, eating a crust of bread. There was a similar process going on in a patient who was becoming emaciated, weak and run down, and anemic. They submitted the patient to surgery, and what was found? They found no ulcer of the stomach. They found obstruction of the pylorus, a gastroenterostomy was done, and the patient recovered. Why in such cases did they not find chronic ulcer of the stomach?

Dr. CHARLES A. L. REED, of Cincinnati, was impressed in connection with these papers, by the little regard paid to one of the most important of the etiological factors, namely, chronic intestinal stasis. There was too little attention given to the conditions within the stomach proper, to the nerve conditions back of the stomach action, and to the various distinctly local causes as they applied directly to the pylorus or to the duodenum, but he thought if one fact had been demonstrated with more conclusiveness than any other in latter day surgery, it was that in the majority of cases they found difficulty to lie in favor of normal physiological drainage of the duodenum and stomach, thus inducing infection which in turn induced ulceration. He had succeeded in demonstrating this to his complete satisfaction in a considerable number of cases, where, as in his earlier practice, he followed the then prevailing method of operating by posterior gastroenterostomy. He had latterly tried to establish drainage in the lower segment of the intestinal tract, and with what results? There was a normal physiological drainage of the duodenum; they had

normal physiological drainage of the stomach, if the pathological process had not already gone too far and certain direful results had become established, and when they succeeded in getting normal evacuation of the lower bowel or in doing away with intestinal stasis, they were getting normal physiological drainage by which the ulcer disappeared.

Doctor HAMBURGER pointed out that in the ulcers which healed, the acidity values were low, and there was not much evidence of dilatation or hypertrophy of the stomach wall. Where he had the greatest hypertrophy or greatest dilatation, he usually got the greatest amount of ulceration.

Doctor DOWDEN was fully in accord with everything Doctor Reed had said as to the important role intestinal stasis played in the production of gastric and duodenal ulcer.

Presidential Address: The Public and the Profession: A Criticism.—Dr. D'ORVILLE HECHT, of Chicago, spoke of the overtension, hurry, and unrest of the Americans as a people, and endeavored to show that the medical profession was on many sides beset with the tricks of tension that created the illusion of energy, and for which they paid in the end with inefficiency. Money-getting and maladjustment in the face of the rapid and radical transformations that had characterized the course of American medicine in the past decades did not account for these tricks. For the real reason of their style of work and play as a profession, they should have to go to social psychology, and find that it lay with them as individuals, with their bad habits "bred of custom and example, born of the imitation of bad models and the cultivation of false personal ideals." The physicians of today were found to be wading up to their necks into mysteries of research. The evenings were spent in dutiful attendance at the meetings of the medical society, and the nights under an avalanche of medical journals. There was nothing wholly disadvantageous in this, but it carried its own penalties. There was a lamentable show of personal indifference for the microscope and test tube. The commercialized general laboratory was an outgrowth of this. Another instance of tension was the bread and butter physician's restless pursuit of research. Aside from the genuine fascination which the creative faculty was sure to have for some men of the academic type, there came to his mind the thought that the many amateurs in research recruited from the heterogeneous mass of clinicians were attracted to it by the glamour of the name. By it physicians were diverted from the paths of the clinic, paths quite as congenial, and in respect of their talents and equipment, infinitely more promising. Medical society madness, instead of manifesting itself as a phase of the theory of relaxation, as indeed it should, presented itself as a symptom of the gospel of intensive work, which it should not. Witness, also, their ephemeral literature and their anything but ephemeral manner of cultivating it. They reached for textbooks to find them too often perpetrated by medical writers not yet dry behind the ears in clinical experience, to say nothing of their erudition. One step in their emancipation from the slavery to books might be realized if they maintained a

healthy skepticism toward every advertised book and periodical that came from the medical press. Their higher wisdom, if they possessed such, should enable them to differentiate creators from compilers, producers, and popularizers. Their book reviewers must turn honest and give them a real version of a work instead of testimonials of affection and esteem for the writer, with a few platitudes and stereotyped phrases thrown in for good measure.

Their tasks must be met with a new working ideal, disburdened of hurry, anxiety, and stress. There must be a show of far greater nonchalance for the "cult of the passing hour," and a larger regard for fixed and abiding truths. In a better inward self adjustment the secret lay. The world had become a better place to live in—and yet as the scope of science had enlarged, as its spirit had deepened, as their gifts to humanity had been more numerous and far reaching, they observed the curious and often painful phenomenon that their efforts were not always less hampered by the public, and the judgment passed upon them not always less malign. There were thoughtful persons, appreciative of the work of the profession. Then there were others—he should not call them unthinking persons, delusional would be more to the point, who in larger social groups, under the guise of sanity, capitalized themselves as antivaccinationists and antivivisectionists. The latter especially were even now spasmodically engaged in pseudoformidable campaigns against the very types of animal experimentation that had resulted in the greatest benefactions to man.

The harm done by the ill advised meddling of dilettanti in questions of the kind and importance of genetics was best illustrated by the eugenic marriage laws now on the legislative books of some of the States as the direct result of a campaign of popularized eugenics. More eloquently and conservatively than anything he could say in regret of such "previousness," had been said by Professor Bateson, of England, in reference to the mental deficiency bill, who had remarked that this bill they recognized as, in principle, a wise beginning of reform, but, on the other hand, they could not hear without disquietude of the violent measures that were being adopted in certain parts of the United States with similar objects. It is one thing to check the reproduction of hopeless defectives, but another to organize a wholesale tampering with the structure of the population, such as would follow if any marriage not regarded by officials as eugenic was liable to prohibition. This measure, they were told, was actually proposed in certain States. Nothing yet ascertained by genetic science justified such a course, and they might well wonder how genius and the arts would fare in a community constructed according to the ideals of State legislatures.

Colon Stasis.—Dr. JOSEPH R. EASTMAN, of Indianapolis, said that it seemed fair to say that treatment directed to the relief of chronic colitis would affect also the attendant ptosis and stasis and likewise the associated plastic peritonitis. Properly performed, short circuiting operations by the improved drainage which they provided or should provide relieved chronic colitis and indirectly affected favor-

ably the other factors of stasis, ptosis, and peritonitis. It was well known that the feces were to a considerable extent made up of epithelial debris of intestinal secretions and of dead and living bacteria, and that these things mixed with food residue under the influence of contractions of the cecum rose in the ascending colon. But this contraction was not constant. The empty cecum was in repose; it did not contract. It was only awakened when the small intestine emptied into its liquid contents. It was this irritant which provoked the contractions. If contractions were not produced in this way, the feces composed of epithelial debris, mucus, and bacteria had no tendency to be evacuated. The colon became lazy and atonic and obstipation was increased by antiperistalsis. It was for this reason that ileosigmoidostomy might be said to be falsely conceived. By this operation the liquid contents of the small intestine were not permitted to enter the cecum to bring about contraction. It was for this reason that Lane, Leriche, and others had been obliged to operate again after ileosigmoidostomy, and deal with enormous fecal accumulations in the cecum and ascending colon. It was clear that typhlosigmoidostomy or typhloproctostomy could not be open to the foregoing criticisms, for in these operations the fluid contents of the small intestine were permitted to enter the cecum.

In a case of simple constipation concerning only the left colon, ileosigmoidostomy might be of some benefit, but it was debatable whether such a condition was not better treated by nonsurgical means.

Bergmann first anastomosed the cecum to the sigmoid for volvulus of the ascending colon, and the operation in cases of stasis was not indicated unless membranes or adhesions so fettered the colon as to make such an exclusion necessary because of incompetency or obstruction. If the colon was obstructed at the hepatic or splenic angles alone, then colocolostomy, as practised by Payr, which excluded these flexures alone, was of obvious use. Sigmoidproctostomy for the exclusion of redundant sigmoid might be often employed with advantage to supplement the anastomosis of the caput coli to the rectum, or the redundant sigmoid might be treated by the Trojanoff-Winiwarter anastomosis between the loops of the sigmoid, or eventually the redundant colon might be resected. At any rate, after typhloproctostomy, coils of redundant sigmoid could not with safety be left above the stoma.

Montprofit's operation of dividing the terminal ileum and anastomosing both ends end to side with the sigmoid, represented no improvement over simple typhloproctostomy. Here an attempt was made to drain the excluded cecum in defiance of the ileocecal valve through the short stump of the ileum, whereas this could be accomplished more simply and more completely by a large stoma in the floor of the cecum.

Dr. JOSEPH RANSOHOFF, of Cincinnati, stated that colon stasis existed without any question, but in a large number of individuals it produced no deleterious results. There was a very small number of cases in which colon stasis was actually followed by conditions that were pathological. It had been said that idiopathic epilepsy might be brought

on by colon stasis. It was a tremendously far cry from colon stasis to epilepsy. Idiopathic epilepsy was a condition which began exceedingly early in life in the form of petit mal. They knew that epilepsy was observed in children as early as the second or third year. By no stretch of the imagination, by no amount of argumentation, could he believe that there was any possible connection between colon stasis and epilepsy.

Dr. WILLIAM SEAMAN BAINBRIDGE, of New York, said that if there was one thing that Mr. Lane emphasized, it was this, that nineteen cases out of twenty of intestinal stasis ought never to be operated in, and yet today all over the world men were saying that Lane performed colectomy, ilio-colostomy, etc., on this class of patients, but if they analyzed carefully all he had written and what he had said over and over again, they would find that he hesitated about operating in certain cases. There were patients who had gone from New York to London with their pocketbooks full of money to have their colons short circuited or removed, but had come back to New York, to live on Fifth Avenue, with a belt on and plenty of Russian oil in their trunks.

Dr. LOUIS J. HIRSCHMAN, of Detroit, thought it was just as important to mention the nonsurgical treatment of intestinal stasis as the surgical before a mixed body of this kind. Postural treatment, special localized exercise, etc., would cure many cases of intestinal stasis. They gave these patients Russian oil for months; it lubricated the stools, hastened their expulsion, and cured many of the cases. When they did not respond to these methods of treatment, as a final resort he fixed the plumbing.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Textbook of the Diseases of the Nose and Throat. By JONATHAN WRIGHT, M. D., Director of the Department of the Laboratories, New York Post-Graduate Medical School and Hospital, and HARMON SMITH, M. D., Surgeon to the Throat Department of the Manhattan Eye, Ear, Nose, and Throat Hospital; Clinical Professor of Laryngology and Rhinology, Cornell University Medical School. Illustrated with 313 Engravings and 14 Plates. Philadelphia and New York: Lea & Febiger, 1914. Pp. xii-683.

The value of the work under review is bespoken by the mere mention of the authors' names. In it there is much to be commended; at the same time, certain changes might be of value, and therein skill is required to differentiate. It is evident throughout that the authors have digressed somewhat from the form usually followed in the preparation of a book on laryngology, and have manifested considerable originality in the preparation and presentation of the text. The reader soon becomes cognizant of the emphasis that has been placed upon the etiology and pathology of disease. The efforts thus made should be deeply appreciated and greatly encouraged, for some recognized work on the pathology of nose and throat conditions has been a long-felt want. While the emphasis thus placed proves to be a distinctive feature, nevertheless, liberal consideration is shown in many cases to the symptomatology, the diagnosis, and the treatment of the various conditions. In some places, however, curtailment is evident. The consideration of laryngoscopy, bron-

choscopy, esophagoscopy, and gastroscopy hardly seems full enough. It appears as though the greater part of the section is taken up with the illustration of instruments. It seems that a more liberal discussion of Mosher's operation, which has been fully demonstrated as a valuable and systematic procedure in the treatment of the ethmoid labyrinth, would be an advantage. Other points noted are that fewer illustrations of the more simple instruments, which can be found in most any instrument catalogue; the waste of less space at the end of chapters; the elimination of many of the case histories, which are frequently interesting, but which consume valuable space with useless detail and contain many repetitions; and a more detailed discussion of some of the important subjects would tend to make this a more balanced work.

While the book may be found wanting in some of the necessary qualifications to rank it with the recognized textbooks, it is already a valuable adjunct to other works, and proper recognition by the authors of friendly criticism would place a subsequent edition in a class by itself.

A Textbook of Pathology; with a Final Section on Post Mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By FRANCIS DELAFIELD, M.D., LL.D., Emeritus Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York, and T. MITCHELL PRUDDEN, M.D., LL.D., Emeritus Professor of Pathology, College of Physicians and Surgeons, Columbia University, New York. Tenth Edition. Revised with the cooperation of FRANCIS CARTER WOOD, M.D., Director of Cancer Research, Columbia University, New York. With Fourteen Full Page Plates and Six Hundred and Ninety-four Illustrations in the Text, in Black and Colors. New York: William Wood & Co., 1914. Pp. xxviii-1116. (Price, \$6.)

To review the tenth edition of so widely known and used a book as this is to mention the good qualities of an old friend. That this edition is as satisfactory as the preceding ones is soon evident on perusal. The same general aims are retained, the topics are discussed in sufficient detail, yet there is an absence of discursiveness. The important facts are presented in a way that makes them readily attainable, and the illustrations used are numerous and well chosen. As in the past, this textbook can be recommended highly, both for the student in the laboratory and for the graduate physician.

The Anatomy of the Human Skeleton. By J. ERNEST FRAZER, F.R.C.S. Eng., Lecturer on Anatomy in the Medical School of St. Mary's Hospital; Formerly Lecturer at King's College, London; and Senior Demonstrator at the Medical School of St. George's Hospital; etc. With 210 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. viii-274. (Price, \$6.50.)

An unusually courageous spirit has actuated the author to attempt to present the anatomy of the human skeleton in a new and attractive form. The title is well chosen, for it is more than osteology, being a textbook on all of the structures that influence the growth and function of the bones. The successful manner in which the author has accomplished his object is due to his full realization of the difficulties of studying dry bones, disconnected from all the structures intimately connected therewith. The announced intention is to induce the student of human anatomy to think of the bones as they exist in the body, rather than as they lie upon the table, therefore description of the dry bone occupies a secondary place.

Each part of the skeleton is used as a peg upon which is hung a consideration of the neighboring structures, thereby establishing a more interesting point of view in the intimate relationship that must necessarily exist. The many original illustrations are made impressive of the author's intentions by the use of colors to make strong contrast between the bones and the soft structures. Confusion is avoided in the illustrations by omission of structures that have no immediate bearing upon the part of the skeleton then under discussion. The value of the 210 illustrations would have been greatly increased by having them on, or opposite the pages upon which appears the descriptive matter.

The importance of studying the bones in the manner indicated, as emphasized by the author, is based upon two main facts: 1. The primary "build" is to enable it to per-

form certain functions and to resist strains. 2. The moulding of bones results from the arrangement and pressure of the surrounding structures. It is urged that every dissection should be with the dry bones in sight and close at hand, and in this way many things that are apt to puzzle a student will find ready solution. Pictures of bones are never adequate and descriptions are of little value unless verified on the bone at the time. The purposes of the author have been well accomplished—the bones become live subjects. The illustrations are convincing; the descriptions are clear and concise. The book is needed by every physician as a ready reference, as well as for an intimate knowledge of the part that the bones play in the performance of the functions of the body.

The publishers have presented the author's work in an unusually attractive form, both for the purposes of a companion in dissection and for separate reading and reference.

Practical Therapeutics. Including Materia Medica and Prescription Writing, with a Description of the Most Important New and Nonofficial Remedies Passed Upon by the Council on Pharmacy and Chemistry of the American Medical Association. By DANIEL M. HOYT, M.D., Formerly Instructor in Therapeutics, University of Pennsylvania; Fellow of the College of Physicians; Assistant Physician to the Philadelphia General Hospital. Second Edition, Revised and Rewritten. St. Louis: C. V. Mosby, 1914. Pp. 426. (Price, \$5.)

The second edition of this book shows a considerable enlargement over the first, chiefly owing to the introduction of the new and nonofficial remedies accepted by the Council on Pharmacy and Chemistry of the American Medical Association up to January 1, 1913. There have also been added a chapter on proprietary medicines and dispensing, sections on pituitrin, salvarsan, liquid petrolatum, etc., and a number of tracings showing the effects of various drugs on blood pressure and heart action. As in the previous edition, the physiological action of each drug is given in condensed form; this is followed by a schematic exposition of the toxicology, and a summary of the therapeutic uses. The work closes with an index of the official drugs, with data as to doses, solubility, etc., and a general index. It contains much useful information, but the proof was evidently not carefully read, the specimen prescriptions especially showing a number of inaccuracies and inconsistencies. Apart from these, the book may be said to present satisfactorily the elementary facts of pharmacology and general therapeutics.

Pathogenic Microorganisms. A Practical Manual for Students, Physicians, and Health Officers. By WILLIAM HALLOCK PARK, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, and Director of the Bureau of Laboratories of the Department of Health, New York City; and ARNA W. WILLIAMS, M.D., Assistant Director of the Bureau of Laboratories; Consulting Pathologist to the New-York Infirmary for Women and Children. Fifth Edition, Enlarged and Thoroughly Revised, with 210 Engravings and 9 Full Page Plates. New York and Philadelphia: Lea & Febiger, 1914. Pp. viii-684. (Price, \$4.)

The fact that this is the fifth edition of this work since its first appearance only a few years ago is an index of the reception which has been accorded it in the past. The authors have completely revised the greater portion of the material in the preparation of this new edition and have found it necessary to add much that is new. So great have the advances been in the last year in the subject of immunity that extensive revision has been necessary of the chapters dealing with this aspect of bacteriology. Similarly, the importance of complement fixation has grown so rapidly that an entire chapter is now devoted to a discussion of its nature and theory and the applications to which it may be put in practical work. The value of this test in gonococcus infection, glanders, streptococcus infection, pertussis, tuberculosis, meningitis, and typhoid fever is discussed separately, and special features required in the technic in any one of these conditions are stated quite fully. Several paragraphs are devoted to a discussion of the general opinion of the results obtained from bacterial vaccination, the tenor of which is toward marked conservatism, although no statements are made which would lead the reader to feel that the authors were prejudiced against

the procedure. The revision has brought the work so far up to date that mention is made of the recently announced discovery by Plotz of the organism of typhus fever, and the finding of the same organism in cases of Brill's disease. At the same time at least one important step in advance has been omitted in the failure to mention the use of emetine hydrochloride in the treatment of amebic dysentery, although a word is said about crude ipecac. With the increase in the size of the volume and the range of the subject matter there came the need for rearrangement of the material. This has been met by the division of the text into three parts; the first dealing with the principles of microbiology; the second considering pathogenic microorganisms individually; and the third dealing with applied microbiology. The scope of this work is such as to make it appeal equally to the advanced student, to the practitioner, and to the expert bacteriologist, a combination rare in books of its class.

Bakteriologisches Taschenbuch. Die wichtigsten technischen Vorschriften zur bakteriologischen Laboratoriumsarbeit, von Dr. RUDOLF ABEL, Geheimem Ober-Medizinrat in Berlin. Achtzehnte Auflage. Würzburg: Curt Kabitzsche, 1914. Pp. vi-140. (Price, Marks 2.)

The eighteenth edition of Professor Abel's book will be welcome. It is the most generally useful, not only of pocket books of bacteriology, but of treatises, and though originally meant to assist those who have laboratory experience, it may be recommended to students. It is not, however, intended for beginners, and for the advanced it may not cover all the details which are sought. For example, the chapter on staphylococci and streptococci is slight; it will be found extended and improved in the English translation. The gonococcus, on the other hand, is the subject of detailed study. As to details to be found, there are few that bacteriologists do not employ in practice, and in this respect the book is notable for care and discrimination. A view of new methods and stains is given, exhibiting specimens collected from standards in laboratories and universities, and showing how they may be applied to every day work and cases. Some of Abel's views will look, we think, diminutive. For example, he says (page 106) that pure cultures of amebæ are not possible. It would be well to express such beliefs in a different way. There is another lack; though the examination of air and water is described, we find nothing about the examination of milk.

Interclinical Notes.

"I am convinced by an unusual line of argument," remarked Dr. Ben Trovato, "that prosperity is once more among us. In my mail this morning were appeals for contributions to feed Belgian physicians, the Belgian public generally, and the poor of New York, to buy clothing for the soldiers of two countries, to erect a statue to a celebrated actor, to help send recruits to the armies in Europe, to swell the charitable funds of my college and three other social organizations, as well as more than the normal number of invitations to subscribe to magazines and costly sets of books. If it pays all these people to send out circulars, we must indeed be doing very well."

* * *

Here's a bit of good news for the doctor. According to the *Outlook* for December 23d, the rapidly expanding national debts of the nations of Europe are—as proved by calculations in the fourth dimension of credit—an augury of increased business activity in America and the world generally. Send out your bills monthly.

* * *

Young doctors looking for a place to start, should consider favorably towns where guns and ammunition are manufactured; except in pagan Japan, there will be a large sale of these commodities for some time to come. Even our own country may decide to order at least a couple of cartridges for every possible soldier in time of trouble.

* * *

Few saints and fewer cynics expected a reform to come out of Russia, yet that country has not only initiated a tremendous moral revolution, but has actually put it into

workable shape, something our dreamy, impracticable cranks could never do. By suppressing vodka and letting wine and beer alone, Russia has given an example to all genuine laborers for temperance. Those who can see no difference between alcohol six per cent. and alcohol sixty-five per cent. will deny that Russia has accomplished anything.

* * *

There is a difference, too, between a mild and delicious infusion of tea and a strong decoction full of tannic acid; also between well made coffee of a superior grade and a boiled mixture of chicory, dried peas, wheat, and a trace of the cheapest coffee; but it is hopeless to try to convince *a priori* thinkers of these facts. Lumped together as "stimulants," although they are in reality physiological antagonists, alcohol and caffeine are anathema to the born crusader, harmful agencies of the devil, like vaccination and experimental physiology.

* * *

Prohibition in Russia, by the well informed George Kennan, is an important article in the *Outlook* for December 16th. The results of the new and sudden policy have already been as astonishing as they were unforeseen. It must be remembered that Russian prohibition is no sudden idea of the Czar's, or even a royal conclusion at all, but is based upon thousands of petitions from the people that the government vodka business be managed in some other way than our South Carolina dispensary system. Russians believe that saloons are better than a system which sends the bottle home to be shared with wife and children. An interesting feature of this movement is a serious attempt to compensate the distillers by giving them a monopoly of the manufacture of denatured alcohol or some similar concession, instead of leaving thousands of employees to shift for themselves as seems to be the amiable project of some of our temperance enthusiasts.

* * *

A novel point of view appears in the *Joliet Prison Post* for December 1, 1914: "A prison is what the officers and the prisoners make it; the greater share of the responsibility rests upon the inmates." This has always been the attitude of the officers, who have never admitted that they were mistaken. If the prisoners concede the point, the efforts of the scientific penologist to better their lot will be largely nullified.

* * *

The *American Review of Reviews*, in its issue for December, 1914, is naturally devoted mostly to the war. Frank H. Simonds, editor of the *Evening Sun*, summarizes admirably the progress of the armies on both sides up to the end of the fourth month. Of special, but so far of little understood importance, is the attitude of Turkey toward Christian Europe and America; this is set forth with authority by Oscar S. Straus, Dr. George F. Herrick, and Judge Lobengier. An excellent article, which we commend to our readers, is The Physical Emancipation of Porto Rico, by Alton G. Grinnell, who tells of the important campaign against hookworm and patent medicines, which has played so large a part in the redemption of the island.

Meetings of Local Medical Societies.

MONDAY, January 4th.—Clinical Society of New York Throat, Nose, and Lung Hospital; German Medical Society of the City of New York; Utica Medical Library Association; Niagara Falls Academy of Medicine; Brooklyn Hospital Club; Hornell Medical and Surgical Association; Clinical Society of the New York Polyclinic Medical School and Hospital.

TUESDAY, January 5th.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society (annual); Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Amsterdam City Medical Society (annual); Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital, New York; Syracuse Academy of Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine (annual); Medical Association of Troy and Vicinity (annual); Medical Society of the County

of Yates (annual); Medical Society of the County of Orange (annual); Medical Society of the County of Cattaraugus (annual).

WEDNESDAY, January 6th.—Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association; Bronx Medical Association; Elmira Academy of Medicine; Psychiatric Society of New York (annual); Society of Alumni of St. John's Hospital, Brooklyn; Schenectady Academy of Medicine; Medical Society of the County of Genesee.

THURSDAY, January 7th.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva Medical Society (annual); Glens Falls Medical and Surgical Society; Gloversville and Johnstown Medical Association (annual).

FRIDAY, January 8th.—New York Academy of Medicine (Section in Otolaryngology); Society of Ex-Interns of the German Hospital in Brooklyn; Flatbush Medical Society, Brooklyn; Eastern Medical Society of the City of New York (annual); Society of the Alumni of St. Luke's Hospital.

Official News.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending December 26, 1914:

Austin, Thomas C., Captain, Medical Corps. Leave of absence previously granted has been extended two months. **Bell, C. R.**, First Lieutenant, Medical Corps. Relieved from duty at Fort Bliss, Texas, and ordered to take the transport to sail from San Francisco, Cal., on or about April 5, 1915, for the Hawaiian Islands. **Bell, Joseph L.**, First Lieutenant, Medical Reserve Corps. Relieved from active duty on or about January 1st at Nogales, Arizona, and after expiration of such leave of absence as may be due him, will stand relieved from active duty in the reserve corps. **Bliss, Raymond W.**, First Lieutenant, Medical Corps. Relieved from duty at Fort Apache, Arizona, and ordered to sail from San Francisco, Cal., on or about May 5, 1915, for the Hawaiian Islands. **Casper, Joseph**, Captain, Medical Corps. Ordered to proceed to camp at Ysidro, Cal., from the Presidio of San Francisco, Cal., for temporary duty. **Conner, C. H.**, Captain, Medical Corps. Granted one month's leave of absence effective December 20, 1914. **Culler, Robert M.**, Captain, Medical Corps. Relieved from duty in Hawaiian Department, effective on the arrival of the March 15, 1915, transport from the Philippine Islands, and then ordered to proceed to the United States. **Demmer, Charles C.**, Captain, Medical Corps. Relieved from duty in the Hawaiian Department, effective on the arrival of the April 15, 1915 transport from the Philippine Islands, and then ordered to proceed to the United States. **Fletcher, H. Q.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty in the reserve corps, and will report at Fort Oglethorpe, Georgia, for duty. **Gellhorn, Walter**, First Lieutenant, Medical Reserve Corps. Resignation of his commission accepted by the President, effective December 15, 1914. **Jervy, Allan J.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty at Fort Moultrie, South Carolina, during absence of Captain G. F. Juenemann, Medical Corps. **Lowe, Thomas S.**, First Lieutenant, Medical Reserve Corps. Granted three months' leave of absence. **McDevitt, Charles J.**, First Lieutenant, Medical Reserve Corps. Resignation of commission accepted by the President, effective December 17, 1914. **Mitchell, Leopold**, First Lieutenant, Medical Corps. Relieved from temporary duty on the *Sheridan* and ordered to proceed to Fort Lawton, Washington, for duty. **Pariseau, George B.**, Captain, Medical Corps. Granted fifteen days' leave of absence; upon arrival in the United States ordered to proceed to Fort Wadsworth, New York, for duty. **Petit, William D.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty, and will proceed to Fort Sam Houston, Texas, for duty.

Births, Marriages, and Deaths.

Born.

Lyon.—In Kansas City, Mo., on Friday, December 11th, to Dr. and Mrs. Maclay Lyon, a son.

Married.

Bessenzen-Gjertsen.—In Minneapolis, Minn., on Monday, January 4th, Dr. William Bessenzen and Miss Beatrice Gjertsen. **Downing-Marryatt.**—In Everett, Mass., on Thursday, December 10th, Dr. Charles H. Downing and Miss Lillian E. Marryatt. **Jackson-Tupper.**—In Honolulu, Hawaii, on Friday, November 20th, Dr. Arthur F. Jackson and Miss Margaret Christy Tupper. **Pittis-Pittis.**—In Fort Myer Heights, Va., on Monday, December 14th, Dr. Edward A. Pittis and Mrs. Ida B. Pittis. **Sawin-Foskett.**—In Springfield, Mass., on Monday, December 21st, Dr. Robert V. Sawin and Mrs. Myra Foskett.

Died.

Chapman.—In Uniontown, Ky., on Friday, December 18th, Dr. George Huston Chapman, aged sixty-five years. **Chenoweth.**—In Kansas City, Mo., on Thursday, December 17th, Dr. M. S. Chenoweth, aged sixty years. **Clausnitzer.**—In New York, on Sunday, December 20th, Dr. John F. A. Clausnitzer, aged sixty-one years. **Cogswell.**—In Cambridge, Mass., on Tuesday, December 22d, Dr. Edward R. Cogswell, aged seventy-three years. **Cremin.**—In Bridgeport, Mass., on Wednesday, December 16th, Dr. Lawrence Mitchell Cremin, aged fifty-four years. **Daniels.**—In Claxton, Ga., on Wednesday, December 16th, Dr. J. Wallace Daniels, aged sixty-five years. **Dewberry.**—In Macon, Ga., on Monday, December 14th, Dr. Thomas J. Dewberry, aged fifty-two years. **Dow.**—In Glover, Vt., on Tuesday, December 1st, Dr. Nelson Lucius Dow, aged fifty-three years. **Drake.**—In Shelbyville, Ind., on Saturday, December 12th, Dr. Morris Drake, aged fifty-eight years. **Eckerson.**—In Denver, Colo., on Saturday, December 12th, Dr. Edward Eckerson, aged sixty-one years. **Eves.**—In New London, Pa., on Sunday, December 20th, Dr. James S. Eves, aged sixty-seven years. **Fournier.**—In Paris, France, on Friday, December 25th, Dr. Alfred Fournier, aged eighty-two years. **French.**—In Boston, Mass., on Monday, December 21st, Dr. Leonard M. French, aged sixty-five years. **Hagmeier.**—In Reading, Pa., on Tuesday, December 15th, Dr. Clarence H. Hagmeier, aged twenty-eight years. **Heidt.**—In Bloomingdale, Ga., on Monday, December 7th, Dr. William T. Heidt, aged seventy-seven years. **Hendricks.**—In Chicago, on Thursday, December 17th, Dr. J. Grover Hendricks, aged ninety years. **Hitchcock.**—In South Hadley Falls, Mass., on Sunday, December 20th, Dr. George G. Hitchcock, aged sixty-five years. **King.**—In Washington, D. C., on Sunday, December 13th, Dr. Albert F. A. King, aged seventy-three years. **Kooper.**—In Baxter, Ia., on Friday, December 11th, Dr. Paul Kooper, aged forty-three years. **Kolipinski.**—In Washington, D. C., on Tuesday, December 15th, Dr. Louis Kolipinski, aged fifty-five years. **Leech.**—In Hickory Grove, S. C., on Saturday, December 12th, Dr. Chesterfield C. Leech. **McCorkle.**—In Fort Smith, Arkansas, on Friday, December 11th, Dr. J. S. McCorkle, aged seventy-nine years. **McGrew.**—In Pittsburgh, Pa., on Friday, December 18th, Dr. Robert L. McGrew, aged fifty-four years. **McWilliams.**—In Schuylkill Haven, Pa., on Wednesday, December 16th, Dr. Frank McWilliams, aged thirty-nine years. **Myers.**—In Kansas City, Mo., on Monday, December 14th, Dr. Edward W. Myers, aged seventy-seven years. **Nichols.**—In Brooklyn, on Saturday, December 19th, Dr. George Nichols, aged eighty years. **Patterson.**—In Butler, Pa., on Monday, December 14th, Dr. Ella H. Patterson. **Rye.**—In Porter, Okla., on Saturday, December 5th, Dr. R. Lee Rye, aged forty-three years. **Stallings.**—In Lindsay, Cal., on Saturday, December 12th, Dr. F. L. Stallings, aged forty years. **Sutherland.**—In Montreal, Canada, on Tuesday, December 8th, Dr. Walter Sutherland. **Talbot.**—In Linton, Ind., on Friday, December 18th, Dr. James E. Talbot, aged sixty-seven years. **Travis.**—In Camden, Tenn., on Friday, December 18th, Dr. Robert B. Travis, aged eighty-three years. **Weinstein.**—In Chicago, on Monday, December 21st, Dr. Victor Weinstein.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal ^{and} The Medical News

A Weekly Review of Medicine, Established 1843.

VOL. CI, No. 2.

NEW YORK, SATURDAY, JANUARY 9, 1915.

WHOLE No. 1884.

Original Communications.

METASTATIC COMPLICATIONS OF SUPPURATIVE OTITIS MEDIA.*

With Especial Reference to Secondary Inflammatory Processes in the Joints.

BY SEYMOUR OPPENHEIMER, M. D.,
New York.

Otology is one of the younger specialties in medicine, but its study has made mighty progress in the past twenty years and it has assured itself a place which commands respect among the other specialties. Diseases of the ear maintain close relations with the body as a whole. It stands in direct connection with the pharynx and mouth by means of the Eustachian tube, therefore it is apparent that disease of these latter regions, which occur so frequently, may attack the ear.

The brain with its dural coverings lies spread out over the inner surface of the temporal bone and it is not uncommon for an inflammatory process of the ear to extend to the interior of the cranial cavity, causing meningitis, extradural or subdural abscess, or attacking the large venous channels in the nature of an infective thrombotic process, causing a general bacteriemia or pyemia.

The acute infectious diseases are frequently accompanied by otitic inflammation and many general diseases may have otitic manifestations as an accompanying symptom. The reverse holds equally true; a suppurative otitic process may give rise to many secondary lesions remote from the focal point of infection. These are in the nature of metastatic processes. When bacteria have found their way into the system they may be disseminated through various channels. They may be carried by the lymphatics into the general circulation. An infective phlebitis may be excited at the point of infection, and this in turn may excite metastatic abscess at remote points through the medium of an embolus containing bacteria. These metastatic deposits may be at one or more points and upon their exact location depends the character of the secondary lesion.

The general symptomatology is common to all cases of infective thrombosis and may be mentioned as cephalalgia, possible vomiting, rapid temperature rises with sharp recessions, rapid pulse, sweats, and rigors. This last is a prominent feature and increases in severity with the progress of the disease. In addition to these symptoms others arise accord-

ing as to whether the metastases are in the chest, in the abdomen, or in the cranial cavity, or whether they are locally evident, such as cutaneous lesions, or ocular, or cardiac, or in the joints and muscles.

The course of the temperature. This may be so like that of typhoid fever as to lead to a wrong diagnosis. Two cases were under observation that had been admitted to the medical service of the hospital with a diagnosis of typhoid fever. The ear symptoms were so slight that they had been completely overlooked; it was only when a bacteriemia was demonstrated by blood culture that the ear was given the consideration it deserved. These cases are of great interest as demonstrating the abdominal type and have been previously reported by Dr. E. Libman in a paper read before the Ninth International Otological Congress.

CASE A. D. K., female, admitted to the medical service of Mt. Sinai Hospital with the clinical diagnosis of typhoid fever. Spleen palpable, a roseola, and high remitting temperatures. Five weeks previously there had been an acute suppurative otitis, now completely subsided. Blood culture positive. Mastoid operation. Findings: A perisinous abscess, and thrombosis of the sinus and of the upper part of the jugular vein.

CASE B. S. V., male, admitted to medical service of Mt. Sinai Hospital. History of profuse aurial discharge with high temperatures. Mastoid symptoms most indefinite. Spleen palpable one inch below free border of ribs. Blood culture positive. Findings: Mastoid filled with pus. Jugular vein found thrombosed and in great part obliterated.

Libman, in commenting upon these cases, says that they are of a type which raises the question of the differential diagnosis between typhoid fever and an infection of doubtful otitic origin.

The *pulmonary* cases which we have observed are three in number where an infective pleuropneumonia developed after a mastoid operation and complicated by a sinus thrombosis. These cases were all fatal and I believe are probably always fatal, as the infective pneumonia passes on to gangrene, or the infarcts produced by the infective emboli cause abscess and great disintegration.

The *cerebral* type are those cases where there is a development of a suppurative meningitis or extradural or subdural abscess. Whether these can be construed as direct metastases is open to question. More likely they are in the direct nature of a complication arising by contiguity.

The *cutaneous* symptoms are manifested by petechiae or ecchymoses and the *ocular* by purulent processes of embolic origin.

Abscesses in the kidney and spleen can be only considered in the nature of a general bacteriemic process.

Endocarditis. It is not always possible to recog-

*Presented at a meeting of the Otological Section of the New York Academy of Medicine, December 3, 1914.

nize this lesion before death. Endocardial murmurs may be wanting, even in cases where autopsy shows vegetation on the heart valves. Two cases of this type have come under my observation. In one it was recognized clinically, but an autopsy was not allowed. In the second it was suspected, but was not proved until the autopsy. This latter case I will describe in detail later. These cases are always fatal, as the bacteria from the heart valves are constantly being disseminated into the general circulation with progressive symptoms of pronounced bacteremia.

Abscess in the muscles, and more particularly in the subcutaneous connective tissue, are not infrequent and their symptoms are objectively and subjectively local.

MacCuen Smith describes three cases of hepatic abscess occurring in the course of suppurative otitis media and mastoiditis. In none of these could he determine the existence of a sinus thrombosis, although the symptomatology is very suggestive. Blood cultures were not taken in these cases.

I am at a loss to explain the development of these metastatic lesions, without a sinus thrombosis and general bacteremia being present, unless we revert to the theory of Koerner on the osteophlebitis of the temporal bone causing direct absorption of septic material into the circulation from spaces in the bone.

I am also at a loss to explain one case of acute appendicular inflammation and three cases of acute gallbladder inflammation, all occurring in my practice, following within two weeks an acute mastoiditis. In none of these cases was there a sinus thrombosis. Unfortunately, in none of these cases are the laboratory findings complete, so I cannot state whether or not the same organisms were to be found in the diseased appendix and gallbladder as were recovered from the mastoid. A careful bacteriological working out of these correlations would be a matter of great value in future cases of otitic disease followed by visceral complications.

Arthritic inflammations. Joint inflammation resembling acute rheumatism appears not infrequently in infective thrombosis involving one or several joints, either with or without pus formation. As a rule other symptoms are manifest which allow of the recognition of the otitic basis of the infection, such as occurred in eight cases which have come under my observation where metastatic joint manifestations definitely followed an active mastoiditis complicated with an infective phlebitis, but it does occur that the ear symptoms may be so slight, or are not referred to at all, that the medical attendant may completely overlook the etiological disease, namely a sinus thrombosis. Of such cases I have seen five, and it is this type of case which I desire to consider particularly and which is important enough to warrant special attention.

It is almost generally conceded that acute articular rheumatism is a disease *sui generis*. It is considered an infectious disease, the definite cause of which is still under discussion. Many different reasons argue for this conception. In almost all cases of joint rheumatism a number of joints are involved, the disease jumps from one joint to another, seldom does pus formation take place, and there exists a frank tendency for the serous surfaces to be affected, particularly the pericardium and

endocardium. To this is added the often observed heredity, the tendency to relapse, and finally the fact that a variety of chemical agents affect the disease specifically.

This characterization of acute articular rheumatism as a genuine disease, a view which many clinicians still hold, is energetically combated by many others. Chvostek expresses directly the opinion that acute articular rheumatism is only a symptom complex, that the number of cases in which the cause is unknown is limited, and that the time is not far distant when acute articular rheumatism as a disease by itself will not be considered. This latter view is supported by many authorities who state that the most varied microorganisms are able to produce the typical picture of acute articular rheumatism. Of course, it had been observed that a variety of infectious diseases, such as scarlet fever, gonorrhea, erysipelas, and pyemia were frequently accompanied by joint symptoms, but it was assumed that they lacked the characteristic signs of acute articular rheumatism, and that they acted irregularly to the specific curative agents of articular rheumatism. This manifestation, therefore, has been designated by the name, "pseudo-rheumatism or rheumatoid." But ever since Sahlí was able to demonstrate that *Staphylococcus pyogenus citreus* could be found in the joints in acute articular rheumatism, and Budy by experimental study by means of intravenous injections of cultures of *staphylococcus* and *streptococcus*, had come to the opinion that acute articular rheumatism was caused by pyogenic microbes, many concluded that the disease owed its origin principally to the pyogenic cocci.

Singer particularly expressed strongly the belief that the pyogenic cocci of angina are the exciters of acute rheumatism, and he succeeded in demonstrating such microbes in the blood and urine of patients. Throat inflammations are so frequently observed preceding acute articular rheumatism, that it is contended that the specific infection first gains entrance through the tonsillar structures and then manifests itself in inflammatory processes in the joints, calling forth all the symptoms of acute articular rheumatism.

The brilliant work of Rosenow is familiar to all. He was able experimentally to induce endocarditis, pericarditis, and multiple nonsuppurative arthritis by injecting the ear vein of rabbits with strains of streptococci recovered from an emulsion of the infected tonsil.

Poynton and Paine, in their classical work, *Researches on Rheumatism*, quoting Cheadle, report three cases of organizing thrombosis of the internal jugular vein in cases of acute rheumatism with cardiac symptoms. Bacteria could not be recovered from the clot or the vein wall nor was there any antecedent otitic history. The organism which they isolated from the joints they called *Diplococcus rheumaticus*.

Netter isolated a streptococcus in a case clinically resembling rheumatic fever, but following acute suppurative otitis media. Lanz isolated a bacillus from the pus of a brain abscess which on intravenous injection into rabbits produced a suppurative polyarthritis, the bacillus again being isolated from the joints. These organisms he called *Bacillus pyogenes fetidus liquefaciens*. Maragliano as well

insists upon the relationship of rheumatic fever and suppurative affections.

Menzer recovered from the joint membranes in a case of acute articular rheumatism, diplococci and streptococci, and reports a large series of cases favorably influenced by antistreptococcal serum. If it is to be conceded that a disease appearing in the guise of acute articular rheumatism can be caused by pyogenic cocci, it must be on the basis that such microorganisms get into the blood stream only in a weakened form, otherwise they would produce an entirely different clinical picture, to wit, pyemia with abscess formation.

Animal experimentation has undeniably demonstrated that weakened pyogenic cocci may produce the picture of articular rheumatism. Fischl was able to show in rabbits into which he injected weakened cultures of staphylococci, that a mild articular rheumatism developed, and he was also able to produce endocarditis which in many ways resembled the verrucose endocarditis in man.

If we accept the foregoing statement, we can then understand that as a complication of middle ear suppuration and infective phlebitis, symptoms of joint inflammation may exist, which symptoms may be so prominent as to overshadow the original underlying causative disease.

My first case is of such extreme interest that I shall outline it rather in detail:

CASE I. F. D., male, aged thirty-four years. On March 20th, right otitis media, suppurative, with myringotomy. Aural discharge very scant for ten days. At work with no apparent symptoms until April 20th; then chills, high temperature, and swelling of left knee. Under the care of his physician, Dr. D. J. Beck, with no improvement. April 30th, case seen in consultation by Dr. A. Moschowitz, a general surgeon, who expressed the opinion that the arthritis was not primary, but secondary to some other focus. Admitted to Mt. Sinai Hospital, temperature 102° F., white corpuscles 13,300, polynuclear count eighty-two per cent. Patient looked septic. No aural discharge, and membrana tympani slightly reddened and thickened, but like a resolving process. No mastoid tenderness, no intratympanic evidences of mastoiditis, and slight submaxillary and cervical lymphnode enlargement. Left knee joint showed existence of an acute synovitis and periarthritis. Blood culture in twenty-four hours, positive with forty-five colonies of streptococci. Aspiration of left knee joint; large amount of yellowish purulent material containing streptococci. May 1st, mastoid operation. Cellular structure macroscopically normal with no evidence of disease except on reaching the sinus groove when some pus was encountered. Sigmoid sinus uncapped, the dura found thickened and covered with plastic exudate. At the bend of the sinus knee, the dural covering was ulcerated, and a protruding partially broken down thrombus was found. The jugular was ligated and excised well below the thrombus, which extended to the level of the facial vein. The external sigmoid sinus wall was removed, the exposure being carried to within a very short distance of the torcular. Patient's condition most satisfactory. May 2d: Blood culture still positive. For the next eight days repeated blood cultures continued positive, but the patient's general condition was most satisfactory and temperature was low. Wounds satisfactory. I might add that the number of colonies of bacteria in each c. c. became steadily reduced, until on May 10th there were but three on the plates with none in the flask. May 10th: Temperature rose to 103° F.— and pain and swelling were observed in left shoulder. From this time until May 15th, when the patient died, temperature ranged from 102° to 104° F. with some meningeal symptoms. Eye grounds showed retinal changes and papillitis. Lumbar puncture, fluid under great pressure. Culture of cerebrospinal fluid negative, but cells increased. Reduction marked. May 12th: Subdural drainage in the temporal and anterior cerebellar region. Dur-

ing the course of the disease, the patient manifested petechiae of the left lower conjunctiva and small reddish nodules on the soles of both feet. Heel of left foot painful, swelling and tenderness of right knee, right and left shoulders, and bullae on fingers of right hand. Temperature before death rose to 107° F.

Post mortem: I will refer only to the examination of the heart, which showed on the mitral valve, localized on both flaps on the auricular surface near the edge of insertion, two areas of cauliflowerlike, grayish vegetations, each one cm. in width, one of them projecting several mm. and the other with a knoblike protuberance about one cm. in width and diameter. The remainder of the heart is normal. Smears from vegetations showed streptococci. This finding explained the continuation of the positive blood cultures after the jugular resection. Repeated physical examinations by the medical attendants had failed in the recognition of this condition, which, by reason of the foregoing they had suspected.

CASE II. C. R., female, aged forty-nine years. Aural discharge for fifteen years. Three months ago, discharge ceased followed by postauricular swelling, which with local applications of ice speedily became reduced. One month later, swelling of ankle joint for which she consulted a physician, who found in addition a pericarditis and endocarditis with pleural exudate. After three weeks, swelling from ankle having subsided, patient went to work, which was followed in a short time by recurrent swelling of ankle joint and considerable dyspnea, which confined her to her bed for two months. Sudden pain in the ear was then complained of, with a chill and rise of temperature to 104° F. The following day, another chill and rise of temperature to 104° F.—. At this time I first saw the patient. Local examination: Membrana tympani absent, with some granulations in the middle ear and slight odorous discharge. Mastoid not sensitive. No choked disc. Diagnosis, sinus thrombosis. Operation findings: Extensive destruction of inner table of mastoid, particularly of posterior fossa wall. Large perisinus abscess with erosion of sinus wall. Sinus contained a purulent disintegrating thrombus. Dura over cerebellum covered with dirty granulations. Jugular ligated and excised. From below the level of the facial vein, the jugular was completely obliterated and was recognized only as a cord. Along its sheath were many enlarged glands. For two weeks, patient did well and then symptoms of cerebellar abscess became manifest and operation discovered a large abscess of occipital lobe. Death followed with evidences of a leptomeningitis. Autopsy refused.

CASE III (previously reported by me at a meeting of the Otological Section in 1910). J. J., female, aged fourteen years, admitted to medical service, Mt. Sinai Hospital, with diagnosis of acute articular rheumatism. Two years previously an attack of acute articular rheumatism, came on shortly after an acute suppurative otitis. Two months before admission, acute aural suppuration, lasting for four weeks then completely subsiding. For one month, chills almost daily, high temperature, sweating, vomiting, and headache. Swelling of phalanges of left hand and left hip joint and stiffness of neck. Blood culture positive. Patient transferred to otological service. No aural discharge. No mastoid tenderness. Beginning optic neuritis. Operative findings: A purulent thrombus in the sigmoid sinus and upper part of jugular vein.

CASE IV. A. L., aged seventeen years, under my care for apparently a very mild acute suppurative otitis, postinfluenza. Myringotomy; culture, Streptococcus mucosus. On the tenth day, ear symptoms ceased and I discontinued attendance. A few days later, pain and swelling in phalanges and wrist of left hand, followed within the next week by a rapid development of involvements of both knees, both elbows, right hip, and right shoulder joints. Aspiration of knee and shoulder joints; no bacteria recovered. Severe distressing bronchitis, not relieved much by medication, nor did the inflamed joints respond to treatment. This condition continued for six weeks with no apparent ear symptoms, but with moderate temperature. Then mastoid tenderness, a sharp chill, and temperature of 103° F.—. Ear examination, membrana tympani intact, but thickened and reddened. Tenderness and edema of mastoid and sagging of membranous canal wall. Diagnosis, mastoiditis with sinus thrombosis. Operation. Beginning perforation of mastoid cortex, and internal destruction, particularly along sinus plate. Pus from mastoid

showed *Streptococcus mucosus*. Thrombus from sinus partly disintegrated in central portion; extended into bulb and below, to about level of the thyroid vein. Jugular ligation and excision. Recovery.

CASE V. R. S., male, aged forty-one years, under care of physician for two months, with swellings of ankle, knee, and both shoulder joints, with no improvement from a large variety of medication; temperature varying from 99° to 102° F.—. Complained of pain in ear, for which I was called in consultation. Local findings: Slight swelling of auditory canal, mastoid slightly sensitive, foul smelling discharge, scant in amount. Ossicles necrotic and membrane deficient. History elicited of chronic aural suppuration with few external symptoms, described by patient as being but a slight moisture. Temperature 105° F., preceded by chilly sensation. Diagnosis established after one day of observation as sinus thrombosis. Mastoid operation. Sclerosed mastoid with few granulations but no free pus. Sinus plate necrotic over a very small area. Dura of sinus covered by thickened exudate and granulations. Sinus contained a firm, white, apparently well organized thrombus, streptococci being demonstrated in thrombus and vein wall. Jugular ligation and excision. Recovery.

The preceding histories demonstrate that an otitic sinus thrombosis may have its clinical history completely masked by the existence of an acute arthritis. In the second case, the joint symptoms were associated with an endocarditis which improved sufficiently to allow the patient to go to work and was followed by a relapse of the joint swelling. In two of the other cases a number of joints became involved in turn, which, strange to say, were in a measure improved by specific remedies, both in the retrogression of the temperatures and the local swellings. In the fifth case, the attending physician who summoned me at the time of the ear pain, pronounced the case to be one of obstinate acute articular rheumatism. In this case there had been an old suppurative otitis, but the arthritic symptoms had been manifest for two months before evidences of a sinus thrombosis. In the second case, three months passed before striking evidences of a sinus thrombosis appeared, the clinical picture having been entirely dominated by the joint swellings and the inflammation of serous surfaces. It was only after my first experience, which caused me to refer in the other cases to the arthritic swellings appearing after a middle ear infection, to a sinus thrombosis. I believe it is superfluous to raise the question as to whether the joint evidences were not primary and coincidental, even though in two cases they ran a typical course.

In the fourth case, aspiration of the joint failed to find bacteria. This experience in other cases leads to the conclusion that it is unjustifiable to presuppose that pyogenic cocci are present in all secondary joint manifestations, otherwise we should observe abscesses of the joints much more frequently in general bacteriemic processes, such as those under consideration. From our present knowledge I believe that toxins can be designated as the cause of such bacteria-free joint exudations.

On perusal of the literature I find only two cases reported which bring articular rheumatism into etiologial relation with otitic disease; the report is by Wolf, who studied two cases of acute middle ear infection following a typical articular rheumatism; in one a cardiac lesion developed from which the patient died one year later. In both cases numerous joints became involved, as in genuine acute articular rheumatism, and in the second case a relapse occurred after six months, but cleared up. It is not-

worthy that the otitic symptoms were very mild and the mastoid showed no evidences of involvement. Wolf is of the opinion that both his cases were of genuine acute articular rheumatism, and that the specific exciters of the disease had settled in the tympanic cavity, similar to lodgment in the tonsillar structure, and therefore the acute otitis must be considered as a symptom of acute rheumatism and not as a cause. As a matter of fact, however, a close analysis of his cases shows that from the first the acute ear symptoms appeared, followed in a few days by the symptoms of joint inflammation with a sharp rising temperature, rather too high for an uncomplicated middle ear infection. It is possible that in his two cases a sinus thrombosis developed, which healed spontaneously by obliteration. One of my cases corresponds to his in the fact that after myringotomy only the scantiest secretion took place, and later at the time of the mastoid operation a perforation of the membrana tympani, if present, was so insignificant that it could not be recognized.

Our contention resolves itself into the following: By no means is it contended as unlikely that after an acute middle ear infection, symptoms of acute joint inflammation may not arise, which would then have to be considered as a symptom, but if, after an acute otitis or during the course of a chronic suppurative otitis, acute arthritic symptoms are present, they must be considered not as a primary, but as a secondary metastatic complication resulting from an infective otitic phlebitis and an associated general bacteriemia.

It will interest the general practitioner to learn that an ear disease is able to call forth the clinical picture of a genuine acute articular rheumatism and that the ear symptoms may be so slight, and by contrast with the joint condition be pushed so far in the background, that even the otologist runs the risk of overlooking the underlying cause, thereby exposing the patient to the danger of an unfavorable outcome, for in the great majority of cases, an unoperated sinus thrombosis runs a fatal course. In view of these facts it does not seem amiss to suggest to bear in mind in all cases of arthritic inflammation with an associated otitic lesion, to consider the latter as a likely primary causative factor.

45 EAST SIXTIETH STREET.

SOME MEDICOMILITARY OBSERVATIONS IN THE LATE BALKAN WARS.*

By CLYDE S. FORD, M.D., Major, Medical Corps,
U. S. Army,

Fort Leavenworth, Kans.

However deeply our attention may be centred on the tragic scenes of heroic proportions now passing in Europe, we must await, perhaps for some time, the reports from which we may be able to draw conclusions of value. As all of the great nations, which have led the modern world in the development of all branches of military art, are now engaged in military practice, we shall soon have such a mass of experience in all military departments,

*Read at the Twenty-third Annual Meeting, Association of Military Surgeons of the United States, Cincinnati, Ohio, September 28, 1914.

that new rules of technic may be formulated which may depreciate the minor precedents of the past.

Although it seems almost presumptuous to offer any account of that lesser tragedy, in two small acts, which has been recently presented in the theatre of the Balkan Peninsula, it may be worth while to consider, in the meantime, some general observations of conditions which, after all, may occur again.

THE FIRST WAR.

It will be remembered that the war between the Balkan allies and Turkey occupied two theatres, in which each operation was of a somewhat different character. The principal field, which was in Thrace, was occupied by the stronger portion of the Bulgarian army and the Turkish army of the east, which opposed the direct attack upon Constantinople. The other field covered the remaining portion of Turkey in Europe, chiefly Macedonia, where the well scattered divisions of the Turkish army of the west were attacked by the Servians from the north and the Greeks from the south.

It was on the Thracian plains that the hardest battles were fought and the issues of the war finally determined, as it was there that Constantinople was invested and all but subdued, and it was to this field that the attention of the Ottoman capital was immediately and vitally directed and to which, also, my meagre observations were limited.

The Thracian campaign was concluded in two phases. The first phase occupied the beginning two weeks of the war from October 16 to October 31, 1912, and resulted in the investment of Adrianople, the complete rout of the Turkish army of the east, and its disordered retreat to the Chatalja line, the outer defenses of Constantinople some twenty miles west of that city. The second phase, much more prolonged by the operations of siege laid to Adrianople and the Chatalja line and interrupted by a long armistice, lasted from November to May and was ended only in the conclusion of the war by the Treaty of London.

I arrived in Constantinople three days after the formation of the Chatalja lines and two weeks before the determined but unsuccessful Bulgarian assault, which lasted three days and which is now known as the battle of Chatalja. As two weeks had elapsed between the termination of the first phase and the beginning of the second, all the wounded from the former had found their way into Constantinople and had filled to overflowing the military, civil, and improvised hospitals.

At this time, however, although the army was relieved of its wounded, an epidemic of cholera, which had begun to rage during the first weeks of the campaign from a number of foci of infections brought by the Anatolian troops from Asia Minor, was at its height. Several thousand cases had been gathered at the rail head of the Chatalja lines at Heydemkui; several thousands more were being carried back and impounded at the rail base at San Stefano, some of whom were carried thence across the Marmora to Ishmed.

While the cholera camp at San Stefano has become known to the world as a great pest hole, and while it is true that the thousands of sick received there were at first without shelter and not well housed

for days, two things must be said in extenuation of the harsh criticisms of the Turkish administration. First, the Ottoman Empire was tottering almost to a fall and all the resources of transportation and material were desperately needed and were duly impressed in the service of strengthening the beleaguered defenses of the capital; and second, such expedients as were employed, though abrupt and unyielding, were efficient in accomplishing the most desired purpose, that of saving Constantinople from a cholera invasion.

All soldiers arriving on trains from the front, whether sick from any cause, or as stragglers or deserters, were impounded together and treated alike, chiefly in San Stefano. The sick and well were kept together and were sheltered as facilities became available. After some days, many cases were taken to the mosques in Constantinople. St. Sophia gave shelter to several thousands, though a careful and efficient guard system kept the soldier separate from the civilian and saved the latter from infection.

From my own experience in the care of more than 600 soldiers under guard in a compound where all were sheltered in buildings, sheds, or tents, 200 were not infected. Although nearly 200 died of the 400 sick, the death rate diminished gradually from fifty to one a day in ten days and in direct ratio to the progress of rough but substantial sanitary measures.

At this time I will not presume to estimate the number of cases of cholera in the Turkish army; although there may have been 10,000 deaths, I am sure there can never be any reliable statistical data prepared. As for the mortality, I think that must always have been relative in this disease. It was about fifty per cent. in my cases, but I believe that in an epidemic like the one I witnessed, with the same virulence of the infecting organism, and the same resistance of the patients, the mortality would not be greater than that of typhoid fever, if cholera were treated as typhoid fever is treated to establish its best mortality statistics.

The hospitals in Constantinople, in November, held as many as 20,000 patients, the greater number being sick or slightly wounded. The great majority received as good care as they were used to at home and fared much better in medical attention.

The most active Turkish military hospital is Gülhane in Stamboul, under the direction of the German Professor Wieting Pasha, who has held his position as medical instructor in the Turkish army for twelve years. A medical officer's post-graduate school is conducted in connection with the hospital and under the same direction. In the laboratory enough typhoid vaccine was prepared to immunize the entire Turkish army at Chatalja, and a manufacturing department, largely operated by convalescent patients, prepared all the first aid packages used in the army. The operating room, radiograph, kitchen, and other appointments, were equal in every way to the State hospitals of Germany. The naval hospital was equipped without regard to expense and possessed all modern refinements, although other military hospitals ranged downward in scale to the barest necessities.

My services in an improvised military hospital in

Constantinople covered a period of six months, with the admission of 500 surgical cases. When we began our service, our 120 beds were occupied by wounded who had come from the second army of the east, a division which had been engaged in the actions that began before Kirk-Kilisse, and which had retreated on a line north of the railroad. From there they had been obliged to proceed without rail transportation, and they were therefore the last to arrive in Constantinople and consequently were sent to the most recently established hospitals. At later periods some cases were admitted with recent wounds, but the majority of our patients were transferred from the permanent and better equipped hospitals to make room for the acute cases.

The character and source of cases received in a military hospital must always be carefully considered in relation to any statistics or conclusions that may be drawn. I have seen statements of the character and frequency of certain classes of wounds in other hospital services with which I was familiar, which have no statistical value, but which, no doubt, may find a place in the medical annals of war to be cited as precedents for future sanitary preparation.

The relative proportion of rifle and shrapnel wounds has been largely discussed by both the lay and medical press, as the interest in such conclusions is based on the importance of determining the relative effect of infantry and artillery fire. A contributor of great eminence has drawn from a numerically limited experience, the conclusion that the old ratio of rifle to shrapnel wounds has been reversed and that, while in former wars there were ten per cent. shrapnel to eighty per cent. rifle wounds, in the war between the Turks and the Allies the ratio was eighty per cent. shrapnel to ten per cent. rifle wounds. Large numerical experiences with the regular incidence of wounds show these conclusions to be erroneous, and that the old predominance of rifle wounds remains, although there may have been a slight increase in the proportion of shrapnel wounds. In my own service at Tash Kishla, in 317 gunshot wounds, there were 101 shrapnel and 216 rifle wounds, which is approximately thirty per cent. for shrapnel and seventy per cent. for rifle. In another group of sixty-eight cases in the same hospital, there was thirty-seven per cent. shrapnel wounds and sixty-three per cent. rifle wounds. These ratios, however, apply only to these particular groups of cases which from the circumstances of their collection at this particular place would give a greater proportion of shrapnel wounds than occurred in battle, because many of them were old infected cases and infection occurred with more frequency in shrapnel than in rifle wounds.

All Red Cross units in Constantinople found considerable trouble in establishing their functions, because the military administration at that time found it most difficult to segregate a portion of the medical service suited to the capacity of each unit. Our American Red Cross party found a service only after locating it by personal search and then securing control through the greatest persistence of diplomatic effort. It is safe to say that any offer of volunteer aid, consisting only of professional personnel and without an organization prepared to furnish all of its necessary service material, and funds,

would not have been accepted and could not have rendered any service. No Red Cross organization was permitted to serve outside of Constantinople, although two Red Crescent units from India, with complete field hospital and sufficient funds to provide for every need of their patients, including subsistence and clothing, were situated midway on the line of communications between Constantinople and the Chatalja lines, and an Egyptian Red Crescent Unit with a complete field hospital and supplies under command of an Egyptian colonel of the medical corps of the Egyptian army had a location at the rail head of the Chatalja lines.

In spite of an effort of five months' duration, including several interviews with the Grand Vizier, diplomatic solicitations, and repeated promises of forthcoming permission to visit the Chatalja line during the time it was engaged in active hostilities, I failed in my purpose until after the beginning of the last armistice, but while the troops were still in position and prepared for a renewal of hostilities.

An interesting figure, there, was the Sanitary Inspector General, Abdul Selim Pasha, general of brigade in the medical corps of the Turkish army, a man fifty years of age, who joined his command in November, 1912, a few days after the battle of Chatalja. He had just returned from the Yemen, an Arab province on the Red Sea, known as the graveyard of the Turkish army, where he had gone fourteen years before as a captain to return from this single tropical tour as a brigadier general. He might well be regarded as an expert on tropical tours of duty and well qualified to advise us whether or not our own troops might serve without peril three years in the tropics instead of two.

I regret that space does not permit a greater attention to this interesting and tranquil personality who ordered a motor car and sent me afield with his aide to view all the sanitary units along the right wing of the army after the commander in chief had denied himself the pleasure of giving me the liberty of his army, and had even expressed his fervent desire for my complete immobility. He is doubly endeared to me because, several days later, he accompanied me in person with a formidable escort for a two days' inspection tour along the left wing, in which we saw all of the camps and the sanitary organizations.

There is always some discrepancy between the organization of the medical service of an army, as it is laid down on paper, and as it occurs in the field, and the army at Chatalja was no exception. Regulations allowed to each division one sanitary company of 100 men each and four field hospitals, but in the twelve divisions of this army there were found only eight sanitary companies at one half to two thirds strength, and twenty-one field hospitals, and therefore there were four sanitary companies and twenty-seven field hospitals fewer than provided for on paper. As the sanitary companies were at much less than full strength, it will be observed that the sanitary service of this army was less than half of that provided for by regulations.

Field hospitals seemed to be commanded by medical officers—it is so stated in sanitary regulations—but there is with them a line officer with a "secretary" assistant who does all nonprofessional work,

and he must be consulted on all nonprofessional matters by the medical officers. Sanitary companies were commanded and administered by line officers, sometimes patriarchs of another martial era who were relegated to that retirement from the newer combatant system into which they could not be incorporated.

The strength of the Chatalja army at this time was given by army headquarters to the medical officers of the command as about 400,000, but from other and less credulous sources I believe it to be not much greater than one half of that strength and perhaps not more than 150,000.

There was a chief surgeon with each corps and one with each division and, normally, a surgeon with each battalion. In all there were 300 medical officers and 150 pharmacists. The incidence of the pharmacists occasioned the almost profligate plethora of apothecary scales, pill tiles, percolators, and the gold labelled bottles in the complete array of a village drug store. Commissioned pharmacists, in some form rather regularly and probably electively, are found in European armies; in that of Turkey military pharmacists are essential bits of impedimenta, because in that country any professional qualification is attained with a formality which elevates the possessor distinctively above the single grade of the masses which form the army, and he must have a commissioned rank, even though it be only next to and just above that of the highest noncommissioned officer.

The sanitary equipment was not wholly uniform because of the disaster of the retreat on the Chatalja line, in which all medical property was lost that was not carried as the equipment of the sanitary soldiers. It was all quite good enough and sufficient for the sanitary service of an army in permanent position, but not fit for a mobile army. Medical supplies were fairly abundant, because, even after the great losses to the Bulgarians, the stores in Constantinople made up the deficiencies.

There were two base hospitals, one at the rail head and the other on a metalled road which ran behind the entire right wing. In the first there was a pathological and chemical laboratory in which the water from all the sources was examined and upon the findings the sources were marked as "potable," "fit for animals only," or "condemned." I saw evidence in the field of the observations of these instructions.

The second hospital was in an old barracks at Yazi-Euren, which had been reasonably cleaned and was well equipped. There was evidence that good surgery was done there, for although all the wounded had been removed, I saw a number of clean cases of herniotomy in a satisfactory state of convalescence.

Wieting Pasha, the German medical adviser, afterward told me that pathological and all other nonemergency surgery had been prohibited in the field, but I could not help but admire the professional enthusiasm which led to the violation of these instructions.

There were in isolation a few typhus cases, some of them occurring in the hospital and others admitted from a certain Asiatic division in that zone. Typhus was considered both epidemic and endemic in this district, and, months later, when I visited the

base contagious disease hospital at San Stefano, nearly all of the typhus cases there had been received from this same base hospital at Yazi-Euren. A medical officer, going to Constantinople from this hospital, discarded his underclothing in the process of personal renovation, and these garments were appropriated and used by an indiscriminating but more needy friend who died several days later from typhus, without other cases occurring in the neighborhood. This story was told me by a Turkish medical officer, who offered it as a military indictment of the body louse as the transmitter of typhus fever.

All the command had been vaccinated against typhoid, and prophylactic doses of quinine were daily administered. There was said to be no typhoid and comparatively few cases of malaria.

Latrines were of an individual type, to conform to the Moslem religious rites, with a shallow hole surrounded by a canvas screen, placed more than far enough from the camp limits. Their use was enforced, when necessary by a guard, and any violation was punished by flogging.

Picket lines were scrupulously clean, and in one camp a picket orderly was charged with the duty of the immediate, if not direct, removal of manure to a nearby incinerator.

First aid packets had been provided for before the war, and it was the purpose of the sanitary department to have every man equipped with one. This, however, was not done at the time of the mobilization, and but few soldiers carried them during the first phase of the war. At this time, I was told, every soldier carried his first aid packet in a special pocket at the inside of the front and bottom of one skirt of his blouse, after the German fashion, and I found it there without exception in the men I inspected.

On the last day of my visit there were 800 reported sick with no deaths, and this number with the lower estimate of the strength of the command as 150,000 makes a rate of about five per cent. Without time for further details, it may be said that the sanitary conditions of the Turkish army at Chatalja were relatively as good as they would have been in an American army which had to meet the same military conditions, and I am inclined to believe that the ineffectives from preventable disease were even fewer.

THE SECOND WAR.

The second Balkan war occupied the month of July, 1913, in two adjacent theatres in Macedonia, on the west and southwest of the Bulgarian frontier, with the Servians on the west and the Greeks on the east combined against the Bulgars.

After the campaign was well advanced the Bulgarian army was on or slightly advanced beyond the southwest frontier of their country, with lines extending along the western and the western portion of the southern frontier, in which position it rested when the war was finished. I was assigned as a volunteer, by the Bulgarian war department, to service in an evacuation hospital at Kustenkil, a railroad town in southwest Bulgaria about ten miles from the Macedonian border and the headquarters of the Fifth Bulgarian Field Army.

I joined one week before the cessation of hos-

ilities and remained for four weeks and until the hospital was practically evacuated. The location was in a highschool building in which there were less than 500 beds, although the hospital was rated at 700. More than 1,000 cases were cared for at one time by quartering the less severely wounded in an adjacent building without beds. A surgeon from the civil hospital service, who was a reserve medical officer, was in command, and assisted by two other reserve medical officers, one of whom had been educated in London and spoke English. The remaining personnel was composed of several nurses trained in the civil hospital service and volunteers of both sexes from the school teacher and student classes. There was one natural aid to the sanitary condition of this hospital in the occurrence of a very hot spring, for which the town had been noted since Emperor Constantine's day, that was utilized for laundry purposes by the gypsies who were impressed into the military service as *lavaderos*, and through whose labors the hospital was supplied with clean linen. The function of the hospital was to receive and care for the wounded only from that portion of the line more accessible to Kustenkil than to any other evacuation point, and to transfer them by rail to Sofia with as much expedition as circumstances would permit. Most all of our cases came from the Fourth Field Army, which was operating in a zone with an advance base at Tzarvacella, about thirty miles distant, and all of the casualties from this zone were evacuated through Kustenkil.

About 10,000 cases in all were admitted to this hospital, and about 4,000 cases were received during my period of service. The severest engagements were fought during the last two weeks or the last half of the war, and for two weeks after the close of hostilities the service was still active because the patients from the last engagements did not arrive in less than four days and more than a week was required to evacuate the field hospitals and rest stations. For a week after the last engagements there was no evidence in our hospital that the war was over. The evacuation of our patients was a matter of great importance, although it did not receive the care it merited in the careful selection of the class of cases best suited for transportation. There was an evacuation service established at the railroad station in charge of a medical reserve officer, who had lately been the Bulgarian minister in Paris, and he relieved the hospital of patients as rapidly as rail transportation facilities permitted.

The admission service of our hospital was divided into two divisions, with the commanding officer and one assistant in charge of one reception department, and the English speaking assistant and myself in charge of the other. The commanding officer was in direct charge of the operating room and of all of the cases admitted to the wards for major operations. The records were kept by an untrained clerical force without any supervision of the commanding officer, and although certain data may have been collected that would meet the demands of an accounting system and which would finally evolve into a "statistic" of some form, there was little that I could learn except from personal observation. The volume of professional work was so great that

it was impossible for five doctors to give it the most careful scientific attention, and for a number of days there was little or no attention given to the wards by the surgeons as they were wholly occupied with the reception of patients.

In my first day's service, my division, doing half of each day's work of the hospital, received nearly 500 cases which were treated in some sort of a way and passed into the wards. In my four weeks' service, my division admitted about 2,000 patients. During this period there were not more than twenty formal operations under anesthesia in the operating room from among all of the patients in the hospital. This seemed to be a surprisingly low proportion of major operations, but I am not sure that it will not hold in any similar situation in which all the casualties from one zone of action or line of battle arrive at the same station. The great majority of wounds need no formal surgical interference before the patient arrives at a base hospital where the operating facilities are the best and where he can be retained during the period of his convalescence. I conceive it to be the function of an evacuation hospital to avoid rather than to seek operative activity.

The cranial wounds which were trephined did not do well, and these cases should, as a rule, be hurried back to the base, to the best surgical service available, where they can remain through convalescence or for autopsy.

Interference with wounds of the chest, save for an occasional drainage of the pleural cavity or a procedure for the relief of a septic condition, is seldom indicated in the field. We had no operations on the chest. Abdominal wounds were received either in a state of convalescence or with peritonitis, and all of the latter patients subjected to operation died, while some of them recovered who were not interfered with. My conclusion in regard to the treatment of gunshot wounds of the abdomen in time of war is unqualified. They should not be meddled with surgically, because they can never be carried directly to a good surgeon with a good hospital. These indications in civil practice are different, because the conditions and not the patients are different. Wounds of the extremities were most frequent, and compound fractures were the most serious. We had three amputations for infection and two of the men died. Gas bacillus infections were very frequent and usually fatal.

Every case we admitted had passed through a field hospital and had received, in general, good and often skillful first aid dressings. I saw no evidence, in these first dressings, of a ligation of a vessel for the control of hemorrhage, and in our hospital there were only two ligations, one for traumatic aneurysm, and the other for a false aneurysm which was revealed by an incision into a supposed abscess.

In our group of cases there seemed to be an undue proportion of compound fractures of the thigh, which were certainly in much greater incidence than compound fractures of the humerus. These patients all deserved the utmost expedition in forwarding them to the base hospitals, where the uninterrupted treatment that such cases require could be begun without delay. Most of the compound fractures were infected, but I saw little indication of general sepsis and only one case for which amputation was

done, and that with fatal result. The Bulgarian surgeon has a deep affection for plaster dressings for either simple or compound fractures, and he did not hesitate to put on a heavy plaster cast for transportation to the next station where, of course, it was likely to be removed and again replaced. Any medical service in the field would suffer no loss if plaster of Paris was not supplied. Many wounds were infected. Though no data were kept on this condition, I should say that not half the number were clean, and that among the infected cases the greater number were light, and septic conditions were not frequent.

The first aid packet and its advantages were known to the Bulgarians, but the army was not provided with them at the beginning of the first war, although great stores had been received from Russia during the first month of the campaign. A Bulgarian soldier who had returned from America "for the fun of the war" told me that the first aid packet was "good stuff" and "you give soldier first aid packet first; afterward his gun." Most of the men of his regiment wore their packets out and many others were lost, but his comrades were in great delight when they captured a Servian wagon train with a large number of first aid packets to renew their supply.

As a word naturally must be said concerning the relative proportion of wounds inflicted by the various arms, it is significant to note that in this campaign, where much of the action was in fixed position with a greater employment of artillery than with a moving force, the rifle wounds were about seventy-five per cent., with shrapnel wounds making up most of the remaining twenty-five per cent., which included shell, bayonet, and pistol wounds. The incidence of bayonet wounds as found in hospitals is not to be taken as a measure of the use of this weapon in battle, because it leaves more dead on the field than wounded to be counted in the hospitals. The pistol wound is entitled to only passing notice, as it occurred in only one known case in which a Mauser pistol ball was extracted.

The question of the use of dumdum bullets, in the form of crimination and recrimination, seems to be a perennial one, even out of the natural habitat of all human atrocities—the Balkan Peninsula. There was no indication nor evidence in the 10,000 cases which passed through the Kustenkil Hospital from a battlefield where soldiers fought with personal enmity and hatred that dumdum bullets were generally used, and in an exhibit of about fifty rifle projectiles removed from the body under my personal observation, only one, from a Greek rifle, showed that the jacket had been worn off the nose by scouring on a stone, although in this instance the projectile was found undeformed in the body.

The medical supplies and dressings were plentiful and more than sufficient for the service needs in our hospital, which had been moved from Kirk-Kilisse, where it was stationed during the first war, and which had then come into possession of several hundred unconsumed chests of Turkish medical supplies.

The therapeutic agents most indicated and employed were iodine, benzine, alcohol, balsam of Peru, and a proprietary nascent oxygen prepara-

tion, which has three times the strength of the official hydrogen peroxide and is therefore three times as efficient in the same bulk. Iodine is the most valuable of all antiseptics in military surgery, but its recent rise to fame had so impressed the Bulgarian surgeons that their gunshot wounds often had a hard run for the terminal stages of convalescence against the persistent and heroic iodine treatment.

There were several other hospitals in Kustenkil; one for cholera, one for other contagious diseases, one for medical cases, and two for wounded. One of the latter was the personal possession and under the direction of the Bulgarian queen, who had quarters adjacent thereto which she frequently occupied; the other was of irregular military origin, commanded by a young Bulgarian reserve medical officer graduated in Russia, who had returned for the war from a gynecological service in the hospital of the University of Kiev.

The queen's hospital was most complete in its personnel, matériel, organization, and administration and quite well prepared to do scientific surgery. It was in charge of a young American surgeon, Dr. Anton Dilger, called by the queen from the Heidelberg surgical clinic where he was an assistant. In the early days of my sojourn it was so feared that Kustenkil would fall into the enemy's hands, that the queen's hospital was evacuated and the personnel ordered to Sofia. The matériel, however, could not have been removed, and I presumed to arrange to purchase it in the name of the American Red Cross, and, accepting the nontransportable cases from the military hospitals, I proposed to act as a self anointed agent of the American Red Cross in order to save the hospital and patients from the enemy. As an instance of the trust and confidence which one Balkan Nationalist reposes in another, I may tell that my Bulgarian colleague asked me if I really proposed to remain if the Greeks took the town. While my answer provoked his wonder, my judgment failed to arouse his admiration. In the course of a few days the wheel of fortune turned for the Bulgarian arms, and serenity again reposed on Kustenkil, and the question of my reckless daring is still open.

The gynecologist's military hospital was very commendable in all its material and spiritual details, for its commanding officer showed a keen sense of organization, administration, and surgical methods. I remember with great pathos my tragic struggles with him in communication, resulting from our mutual carelessness in the first choice of languages (which he had done much more to correct than I), that occurred in a Teutonic zone of neutrality where he was much at home although my presence was almost *verboten*.

The cholera situation in the Fifth Army deserves even more than a passing word, as it was so directly connected with its accomplished chief surgeon, Professor Petroff, director of the Royal Hygienic Institute of Sofia, first lieutenant of reserves and chief pathologist of the Fifth Army. In the 60,000 men in the Fifth Army there were 1,000 cases of cholera with 150 deaths or fifteen per cent. mortality. These cases were treated in two different hospitals. Doctor Petroff strongly commends the ad-

ministration of tincture of iodine, five to eight drops, in solution, three times a day. Bacteriological diagnosis was made in cases not clinically clear, and no case was discharged unless the feces were vibrio free. Twenty days was the longest period in which vibrios were carried after symptomatic cure. The therapeutic methods advocated by different doctors in charge of cholera cases were somewhat conflicting, as they included the administration of lactic acid, opium, bismuth, brandy only, and an opinion that artificial serum bore no good effect and that the less liquid ingested the better. The body and clothing of each patient were disinfected before he was discharged.

The lines of evacuation which brought the wounded to our hospital were somewhat interesting, because, while Kustenkil was the headquarters of the Fifth Army, with its centre only ten miles away, none of its casualties came to Kustenkil, but instead, the wounded of the Fourth Army, at least thirty miles away, became our patients. This arrangement was determined by the topography of the theatre and the railroad connections, which can easily be determined from a study of a map.

The great majority of our patients regularly were carried four days in bull carts to reach the hospital, and though some arrived with bedsores incident to the journey, the means of transport was considered regular and there were no complaints, as no ambulances were provided for the line of communications. But after all, the humility of the bull cart is not to be despised, for patients who began their journey in motor trucks begged to be allowed to walk and to take their chances of catching bull cart transportation, which did not bounce them about so violently.

An Austrian sanitary train with full equipment and regular personnel, commanded by a major of the Austrian army medical corps, made daily trips to Sofia with 200 patients, and further demands for evacuation of the sick and wounded were met by ordinary freight trains.

The Bulgarian medical service has its faults; if sins they be, they are sins more of commission than of omission. The Bulgarian soldier may not suffer quite as much from his shortcomings as the more sentimental of his western critics and sympathizers think, because his sanitary organization is built upon two great accepted principles:

1. The false economy of weakening a military force by diverting its resources in an attempt to escape the natural consequences of its activities.

2. Absolute resignation to the principle that a wounded soldier is a fellow out of luck.

The Bulgarian war department calmly and dispassionately confesses the limits of its ability to divert its funds from the necessity of guns and battalions, to the luxury of ambulances and the pay of doctors. Besides, there are only 650 doctors in Bulgaria, and less than 200 of that number remain with the army in its peace strength of 60,000 men. In time of war, with an army of 300,000, there can be no more than three times the peace strength of doctors, even though all of them are in the military service, as they are expected to be, because there is

never a closed season to their military conscription.

The sanitary department has an organization which the Bulgarian general staff considers consistent with the needs of the army, but there seems to be a defect in the failure to provide aid to secure an efficient system of sanitary administration. As the sanitary department is not wholly administered by the general staff, and as it is not provided with much of a system for internal administration, it sometimes seems to fall between the upper and the nether stone. There are regimental, field, evacuation, and base hospitals and sanitary trains which are mobilized efficiently, but they seem to get away from the touch of a guiding hand after they become engaged in a few evolutions. I have seen a well administered regimental hospital over a mile down in the valley from the position of the regiment on the mountain top, connected with the regimental position by a telephone and with an operator at the hospital constantly in attendance through day and night. I have known a regiment with its medical service in each of its three battalions entrusted to a dentist in one, and a medical student in each of the other two. I have seen a major and a lieutenant colonel of the regular medical service on duty as regimental surgeon and as commander of a field hospital, respectively, in an army with a first lieutenant of reserves as the chief surgeon.

Bulgarians as soldiers and patients, while not always lovable, are generally admirable. Their fortitude and endurance, coming from the system of frugal living as peasants, cannot be surpassed in other races. Their country is aptly called a "Peasant State," for land owning is the peasant's passion and absenteeism among landlords is an unknown institution. Beside furnishing clothing from the wool, their sheep give them milk and meat; the grain in their fields furnishes their bread; and their peppers and onions and garlic provide the stimulation that some other races seek in alcohol.

I believe that the ally compounds which give the characteristic flavor and odor to garlic and onions are important agents in alimentary sanitation, and are fitting adjuncts to the sheep casein, coagulated by the Bulgarian bacillus. This bacillus, by the way, though advertised by Metchnikoff, was discovered by a Bulgarian, Dr. Stamen Gregoroff, a student in Geneva working with Professor Massol in 1887-88. Gregoroff isolated his bacillus in a study in which he suspected its quality and sent a culture to Metchnikoff for confirmation. With the garlic and onions, as with sour milk, the salubrious action in the alimentary canal is evidenced by the deodorization of the feces. When, however, I advised a cultivated officer of the army of a people boasting more of their civilization than do the Bulgars, to adopt this method of diet, he said he preferred his own alimentary iniquities to a method of salvation which transferred an objectionable odor from his feces to his food. From my observations among the Bulgars, I am sure that in selecting soldiers, the garlic eaters are to be preferred, and I have no doubt that future changes in national frontiers will be effected more permanently by those who eat garlic than by those who do not.

ARMY SERVICE SCHOOLS.

PNEUMOCOCCUS INFECTION AND IMMUNITY.*

By RUFUS I. COLE, M. D.,
New York.

(From the Hospital of the Rockefeller Institute for Medical Research.)

(Concluded from page 7.)

METHODS OF SPECIFIC TREATMENT.

In the following discussion of treatment the consideration of nonspecific measures is not omitted because their value is not recognized. Certainly, in the treatment of patients with pneumonia, all possible means of stimulation and all known measures for increasing natural powers of resistance by nonspecific measures should be employed. Our own studies also have included no observations concerning the value of active immunization, that is, the use of vaccines in this disease.

While chemotherapy has been notably successful in the cure of certain protozoan infections, the attempt to produce bacterial sterilization of the body without harm to the host has not been promising. Because of the empirical observation that quinine apparently has some effect on the course of pneumonia in man, Morgenroth experimented with various organic derivations of quinine and finally discovered one which he called ethylhydrocuprein, which apparently was able to exert slight protective and curative action in infected mice. It was also shown by Wright and others that this substance is directly harmful to pneumococci *in vitro*. Even though the protective dose for animals was found to approximate closely the toxic dose, several series of cases of pneumonia in man have been treated with this drug. It was soon found, however, that in man the danger of toxic action was very great; amblyopia occurred in a considerable number of cases, and on this account the practical value of this drug in the treatment of pneumonia is very doubtful.

The method of specific treatment of bacterial infection for which at present there exists the best, or perhaps the only experimental justification is by means of specific immune serum or, in other words, passive immunization. The most striking results which have been obtained by the use of immune serums have been in diphtheria and tetanus. In both instances the action of the serum does not consist in a destruction of the infecting bacteria or in an inhibition of their growth, but in a neutralization of the toxin produced by them. This is one of the reasons, at least, why we have considered it of so much importance to learn more concerning the nature of the substances, if there are such, to which the symptoms of pneumonia are due. If such a substance could be found, it might be possible to obtain a neutralizing substance, either by chemical measures or by means of biological reactions. As has previously been stated, however, the attempts to find such an intoxicating substance produced by pneumococci have not yielded promising results. In spite of the fact that the evidence does not strongly suggest that the toxic substance obtained from the bodies of pneumococci, or the so called anaphylatoxin, plays an important role in inducing the manifestations of pneumococcus infection, we have nev-

ertheless attempted to produce an immune serum to this toxic substance in the hope that it might have some power to overcome the effects of this infection.

The previous efforts to produce active immunity to the so called anaphylatoxin of other bacteria have yielded discordant and confusing results. Zinsser⁷ has lately shown that if guineapigs are inoculated with a sublethal dose of typhoid anaphylatoxin, the animals after a period of seven to sixteen days show a greater resistance to this toxin than do control animals previously untreated. The results obtained, however, were not very constant or striking. Our own observations confirm these results. We have, nevertheless, attempted the immunization of larger animals. The use of satisfactory controls when employing large animals like the sheep is manifestly impossible, so that while the actual degree of resistance attained cannot be stated, it was found that by administering to sheep repeated doses of the toxin, gradually increasing the size of the dose, they might become so resistant as to stand without harm doses of the toxin as large as that prepared from the bacteria contained in two litres of a bouillon culture. When an attempt was made to transfer this immunity passively to guineapigs, however, the results were questionable, and we must believe that it is doubtful whether any neutralization of the toxic substances can be obtained in this way. The antiinfectious action of such a serum was also tested by administering it to mice, mixed with lethal doses of living bacteria. It was found to have some effect, and the protective power was not very specific as regards type of organism, that is, an antitoxic immune serum obtained by the injection of a toxin prepared from organisms of Type I, had almost as high protective power against organisms of Type II as it did against the homologous organisms. It might be thought that this lack of specificity would render such a serum eminently suitable for treatment, since the necessity for determination of the type of organism concerned in each case would be avoided. The protective power of such a serum for any of the types of pneumococci, however, including the homologous one, was not nearly so great or so striking as that of the serum of animals immunized by the injection of living bacteria. The experimental studies, therefore, do not indicate that an immune serum obtained by the injection of toxin possesses any high degree of antitoxic or protective power. The action of a so called antitoxic serum produced in the manner described, contrasted with the action of an immune serum produced by the injection of living bacteria, is shown in the following table (Table VI).

TABLE VI.

ACTION OF PNEUMOCOCCUS IMMUNE SERUM.		
	Antibacterial serum.	Antitoxic serum.
Agglutination	+	+
Antihemolysis	+	+
Protection	Active; high specificity as regards type.	Less active; slight specificity as regards type.
Antitoxic action	Doubtful	Doubtful

If it is true that pneumococci produce their effects by some subtle mechanism closely associated with their life processes, such as I have previously sug-

⁷Journa. of Experimental Medicine, 88, 352, 1914.

gested in discussing methemoglobin formation, these effects will probably be prevented only by inhibiting the growth and multiplication of the bacteria in the body. The possibility of producing active immunity in animals by the injection of repeated and increasing doses of living pneumococci has been known since 1891. It has also been known that by the serum of these immune animals passive immunity may be conferred upon other animals. On theoretical grounds, therefore, it would seem that the administration of such immune serum should have a favorable influence on pneumococcus infection in man. As a matter of fact, such immune serums have been largely employed in the past, but the clinical observations have not indicated that they have any favorable influence on the course of the disease. In 1904, Anders collected and discussed the reports of 535 cases of pneumonia treated by means of immune serum. His conclusion at that time was that the results did not justify the further employment of this method.

Further experimental studies, however, have disclosed reasons why such immune serum, as it was previously employed, would not be likely to show any beneficial results. In the first place, a pneumococcus immune serum is effective only against the type of organism used in the process of immunization. If, for instance, immunization is carried out with organisms of Type I, it may be expected, judging from experimental studies, that it will have no effect on any infection due to one of the other types of pneumococci. Similarly, a serum produced by the injection of pneumococci of Type II can have no effect on any infection due to other types of pneumococci than that employed for immunization. Finally, if the immunization is carried out with one of the organisms of Type IV, it can have no effect on any infection except that due to the same race. We have lately examined an antipneumococcus serum now on the market and possibly being employed in a considerable number of cases of pneumonia. This serum is said to be polyvalent, but experiments have shown that it has absolutely no protective power against organisms of Type I or Type II or in fact against any of the organisms against which we have tested it. It has undoubtedly been prepared by the injection of a group of organisms, all of them of Type IV. Its use in treatment, therefore, undoubtedly does more harm than good. Even when immunization has been carried out with organisms of Type I or II, mixed with numerous other organisms of Group IV, it is probable that the degree of active immunization to organisms of either Type I or Type II has not been sufficient to produce a serum actively protective against either one of them.

In order to render an antipneumococcus serum theoretically useful in any type of pneumonia, it would be necessary, first, to produce a serum with high protective power against the type of organisms concerned; second, to have a satisfactory method of standardization of such serum; and, last, to have a method for quickly determining the type of organism in each individual case.

These conditions have now been satisfactorily met, at least as far as organisms of Types I and II are concerned. By the immunization of horses by properly spaced doses of living pneumococci, it has

been possible to produce serums of very high protective power against organisms of Type I and Type II. As regards pneumococci of Type III, it is absolutely impossible to produce a serum having any protective power whatever. The use of immune serum in infections due to this type of organism, therefore, is entirely without justification. Cases of infection due to this type of pneumococcus, however, while very severe, are fortunately relatively infrequent. Lastly, active immune serum may be produced to each of the organisms which we have placed in Group IV, but the serum in each case is effective in protection only against the individual race used for immunization. Therefore, such a serum could not be employed with any hope of success. This is of minor practical importance, since the infections due to this type of organism are of relatively mild grade. On experimental grounds, therefore, the cases of pneumonia which might be influenced by immune serum are only those due to organisms of Types I and II. These cases, however, from the experience so far obtained, probably constitute the largest number of cases of this disease as seen in New York, and probably in this country.

The second requirement for the employment of immune serum, that is a satisfactory method of standardization, has also been at least fairly well met. In testing the serum a number of mice are employed. They are divided into two series, in one of which doses of fresh bouillon cultures of decreasing size from one c. c. to 0.000001 c. c. are injected. In the second series of mice similar doses of the culture are injected, but in each case this is mixed with 0.2 c. c. of the immune serum. This dose of serum has been chosen after many experiments have demonstrated it to be the most suitable one. The results of this method of testing have been most satisfactory. A serum which, in doses of 0.2 c. c., will protect a mouse of fifteen to twenty grams from 0.1 c. c. of culture, of which 0.000001 c. c. alone will kill, has been found always to act in this way. It has been possible, without very great difficulty, to produce an immune horse serum effective against organisms of Type I of such a titre as that I have just mentioned. To produce a serum constantly effective against organisms of Type II of a similar potency, however, has been much more difficult. The Type II serum in doses of 0.2 c. c. usually protects a mouse only against 0.01 c. c. of culture and no more.

Lastly, the third condition for the use of immune serum, namely a method for the rapid determination of the type of organism in each case, has also been met. The method employed is as follows: As soon as a patient with pneumonia is admitted to the hospital, a portion of sputum coughed directly from the lung is obtained if possible, and, after washing, this is made into an emulsion in sterile salt solution or in bouillon, and this emulsion is injected into the peritoneal cavity of a mouse. Cultures are also made from the blood of the patient, and in case the specimen of sputum is not satisfactory for any reason, cultures are made directly from the involved portion of the lung by the insertion of a sterile needle. This latter procedure is apparently not harmful, but at present is carried out only when other methods are likely to fail. In most cases the

injection of sputum into a mouse is sufficient to yield a pure growth of the infecting organism. To obtain an emulsion of bacteria it is only necessary to wash out the peritoneal cavity of the mouse with salt solution, four or five hours after the injection has been made. The cells of the exudate can be removed by centrifugating for a short time in a slowly revolving centrifuge. The bacteria can then be removed from the supernatant fluid by rapid centrifugation, and the bacteria washed in salt solution. One then prepares an emulsion of the bacteria, and the agglutinability is tested by mixing together equal parts of the emulsion, first with an equal part of immune serum of Type I, also with an equal part of an immune serum of Type II. If the bacteria are of Type I or Type II, agglutination with the corresponding serum occurs, usually within a half hour. At present we also confirm this test by a protection experiment with mice, but in our experience the agglutination and protection tests always give corresponding results.

There are two additional reasons why the employment of immune serum, as it was carried out in the past, were not likely to produce favorable results. In the first place it was not used in sufficiently large amounts. It has been definitely shown that for immune serum to be effective in animals, it must be given in sufficiently large doses so that, after dilution in the blood and body fluids, the immune substances are still present in considerable concentration. This means that for large animals or man the dose must be very much greater in proportion to the grade of infection than in small animals. Judging from the protective doses in small animals, the dose of fifteen to twenty c. c. previously employed in man could have but little effect, even though the serum was at its maximum efficiency and the degree of infection slight.

Lastly, on theoretical grounds it is important that the serum should be administered early, before the degree of infection is too great, certainly before there is a high degree of general infection. In animals, even if the treatment is given at the time of infection, there is found to be a degree of infection against which no amount of serum, however large, is able to protect. However, in mice and especially in guineapigs, which are not so susceptible to pneumococcus infection as mice, and in which the conditions, therefore, more nearly resemble those in man, not only is highly immune serum protective, but it is also curative if treatment is not too long delayed. One may conclude, therefore, that, even in man, if the treatment is given in large amounts and not too late in the disease, there are quite definite experimental and theoretical grounds for believing that it might be effective.

In discussing the possibility of employing immune serum in the treatment of pneumonia, it is important that we consider the two types of cases and the corresponding kinds of serum separately. As I have before suggested, it seems that we should come to regard the disease as produced by these different types of organisms as distinct entities. We undoubtedly shall come to so regard them, as soon as the development of clinical bacteriological laboratories renders it feasible to do so. The probable number of cases of pneumonia of all types occur-

ring in New York last year was over 15,000. Of these, judging from our small number of observations, probably one third at least, or 5,000, were due to organisms of Type I. Of the deaths due to pneumonia, probably 1,500 were of this type. This number of deaths is considerably more than all the deaths from typhoid fever, scarlet fever, and cerebrospinal fever combined during the same period of time. This one type of pneumonia, therefore, is quite important enough for us to give it independent consideration. To influence this one type of pneumonia by specific measures would, of itself, be of very great importance.

The method of treatment carried out has been as follows: As soon as it is determined that we are dealing with an infection due to pneumococci of Type I, treatment with immune serum is begun. The serum is injected intravenously. Usually eighty to ninety c. c. of the serum is injected, and this is repeated in twelve hours. Usually these doses are repeated on the following day and this is continued so long as the patient's condition indicates that it is advisable. The treatment has so far been carried out in only a small series of cases of pneumonia due to organisms of Type I occurring in the Hospital of the Rockefeller Institute, and the number of cases is still much too small to enable us to draw conclusions as to the efficacy of the serum from mortality statistics alone. In the small number of cases the results have been extremely encouraging, both as regards the effect on the clinical course, and on the outcome, but so far as possible we have avoided drawing conclusions from mortality statistics and prefer to lay especial stress on the following observations. First, in a considerable number of the treated patients, the blood cultures, before beginning treatment, have been positive. In some of them the degree of general infection as indicated by the number of colonies per c. c. was quite high. A high grade of general infection is undoubtedly of bad prognostic import. The two main conditions associated with death of patients with pneumonia are increasing invasion of the blood by pneumococci and extension of the local lesion. Now in every treated case in which the culture from the blood was positive before the first injection of the serum, following one injection, and before the second one was made, the culture of the blood was negative, and remained so. Second, it has been demonstrated that the process of recovery in pneumonia is associated with the appearance in the blood of substances which are able to protect mice against infection with pneumococci. Whereas in the untreated patients these substances appear only late in the disease, at or following the crisis, in treated cases their appearance is very appreciably earlier, usually shortly after treatment is begun.

We expect to continue this method of treatment of cases due to pneumococci of Type I. It is expected that the method will be employed elsewhere. After a thousand or more cases are so treated, we shall expect to have final and conclusive proof of the value of this method of treatment, but not until then.

Lastly, let us consider the use of immune serum against organisms of Type II in the cases due to in-

fection with this type of pneumococcus. During the winter of 1912-13, we treated a number of such cases by appropriate immune serum and were satisfied with the results, which approximated those obtained by the employment of serum of Type I, in the cases due to pneumococci of Type I. Last winter we again treated a number of these cases, but the results were not satisfactory. This would have been more discouraging were it not for the fact that the experimental study of the serum employed showed it to be much less active than that employed during the preceding winter. It is impossible to state upon what this difference in serums depends, but it is well known that, even in the production of diphtheria immune serum, certain horses are satisfactory, others are not. This autumn, with new horses, we are again obtaining serum of Type II of high potency, and are again treating patients suffering from this type of infection, with encouraging results. Whether the efficacy of this serum in treatment will ever equal that of Type I, or indeed whether the general treatment of cases due to this type of organism with immune serum will be justified, is impossible at present to say. Certainly there are experimental observations which indicate that the chances of obtaining satisfactory results with this serum are much less than with serum of Type I.

In the first place, it is much more difficult to produce a serum having as high a grade of protective power. Second, the maximum infective dose which may be protected against by immune serum of Type II is smaller than that which may be protected against by serum of Type I. For instance, 0.2 c. c. of serum of Type I will regularly protect a mouse against 0.1 c. c. of a Type I culture, no matter how high its virulence. This is the largest dose of culture, however, against which the immune serum will protect, no matter how much serum is employed. One, or even two c. c. are no more effective than 0.2 c. c. In other words, 0.1 c. c. of culture is the maximum dose in a mouse which can be protected against by immune serum. In the case of Type II pneumococci, this maximum dose is distinctly less. One can only very rarely protect against more than 0.01 c. c. of culture, even with large amounts of serum. These figures are so constant as to be astonishing. On the other hand, so far as active immunity is concerned, in all the types of pneumococci, the limit of protection has not been reached. Animals may be actively immunized so that they will stand many multiples of the above mentioned maximum doses. It is apparent, therefore, that in the actively immunized animal there is some immunity factor which cannot be transferred with the immune serum. In the case of immunity to organisms of Type I, it is evident that this second factor is not so essential; passive immunity is high. In immunity to pneumococci of Type II, this factor is more important. Whether it is so essential as to render the treatment of patients with immune serum alone ineffective, only further study will show. In the case of pneumococci of Type II this second factor is apparently absolutely essential; no passive immunity whatever may be obtained. It is therefore apparent that organisms of Type II, so far as their immunological reactions are concerned, occupy a position midway between those of Type I and

those of Type III. Placing the various types of pneumococci in a series relative to the immunological reactions produced, first should come organisms of Type IV. A high grade of passive immunity may be obtained against them, and if it was practical to produce quickly an immune serum to each strain, every case of pneumonia due to this type of organism could probably be quickly cured. Next should come organisms of Type I. These produce a fairly high grade of passive immunity, and treatment with immune serum is apparently effective. Next come pneumococci of Type II, against which the production of passive immunity is more difficult to obtain. Finally should be placed the organisms of Type III, against which no passive immunity whatever can be produced, and serum treatment is therefore impossible.

An effort has been made to increase the efficiency of serum of Type II by concentrating it. Doctor Avery, who has carried out this study, has found it possible to concentrate both the Type I serum and Type II serum, since it has been found that all the immune bodies are contained in a part of the globulin fraction of the protein. In the future, therefore, it will be possible to avoid to a great extent the occurrence of the symptoms of serum sickness, which occur in a considerable number of the treated cases, owing to the large amounts of serum employed. These symptoms, while somewhat distressing, are apparently of no serious import. Whether by this concentration of the serum, however, we shall succeed in rendering it more efficient in treatment is somewhat doubtful, for the reasons I have mentioned. If the serum is not effective, it will probably not be because it does not contain sufficient immune bodies, but because the second factor of which I have spoken is lacking. In the future study of this problem it seems of most importance to learn more of the nature of this second factor concerned in immunity, and to attempt to find methods for quickly stimulating its production, or for transferring it from one animal to another. The studies which we are now carrying on relate especially to this problem.

In this discussion I have laid stress on the work carried on in the hope of finding a rational basis for serum therapy, rather than on the actual practical results already obtained. It is only by discovering the underlying principles that we can hope to obtain satisfactory measures for combating this terrible infection. A sufficient number of tests with the random employment of immune serum, vaccines, etc., has already been made. We can only hope that careful experimental studies have given us justification for the employment of immune serum in the way I have mentioned, and that the practical results in a large series of cases may confirm the conclusions drawn and the results already obtained.

Utility of Uncombined Quinine.—MacGilchrist, in *Semaine médicale* for March 11, 1914, it is said, states that uncombined quinine, though but slightly soluble in water (one in 2,000) is absorbed as rapidly and as completely as are the salts of quinine. It is much less likely to cause gastric irritation, and being practically tasteless, can be readily administered in powder form.

A CONSERVATIVE ESTIMATE OF RADIUM THERAPY FROM THE CLINICAL STANDPOINT.*

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If a new perspective is required to grasp the magnitude of the cancer problem and the need for new and more effective agents for its treatment, the reader is referred to an excerpt from the report of the board of health of this great metropolis in the issue for December 5th last, which records a mortality in a single week of 115 from cancer. In round numbers this means 6,000 deaths by malignancy per annum in Greater New York, 12,000 in this State; and a total of 120,000 deaths per annum in the United States. Doubtless this is below the true number for the reason many individuals and families dislike to have the true cause of death given in mortuary statistics, and so many are otherwise reported. Again, failure to make early accurate diagnosis in other cases is a fertile source of error. The need of early and exact diagnosis of all tumors, warts, moles, and the pathogenesis of bleeding from the vagina and uterus is disclosed in the fact that a large proportion of malignant diseases is not accurately diagnosed until the growth has attained considerable proportions or metastasis has occurred. If the attendant has any doubt of entire differentiation, the patient is entitled to the opinion of an expert. The supreme importance of this last proposition becomes more apparent when we recall the fact that cancer in its incipency is always a single localized lesion and, if accessible, is curable by excision or destruction of its malignant cells. This leads to the impressive fact that information to the public, and to women in particular, of these truths by organized effort along ethical lines followed by the American Medical Association in delegating this important function to women physicians, as is done in this and other States in the United States. If any other argument is needed to enforce these propositions, it is found in the appalling fact that before the age of forty-five years one woman in every fourteen dies of cancer of the reproductive organs, and that one in nine after forty-five years falls victim to the same cause.

Observation and conclusions. The writer, with a long surgical experience in the treatment of cancer, believes with others that operative surgery has approximately reached the limit of its curative and palliative efficiency. This casts no discredit on the ever increasing benefits surgery has conferred on vast numbers of cancer patients, but stimulates the hope that widespread study and research will soon disclose the cause and antidote—particularly the latter. This state of affairs forces us to any new method which brings new power to conquer this hideous ailment, and so we turn to radium for any aid it may offer.

The scope of radium therapy is a question the profession and the laity desire to be answered, and it should be judged by fair and unprejudiced meth-

ods of investigation, study, and observation. As an aid to our judgment an appendix follows the text of the paper in the form of an abstract for 1913 from the London Radium Institute, one of the largest and best equipped institutes in the world, noted for its moderate and conservative conclusions. It contains valuable information respecting their experience in various forms of cancer and is commended for careful study. The full text is found in the *British Medical Journal* for May 23, 1914.

Lack of confidence and unbelief in radium. The writer believes that unbelief is susceptible to reasonable explanation, and is due to two causes: First, lack of quantity and potency of much of the radium used; second, want of knowledge and skill in its application. From these causes honorable practitioners have met with disappointment and relinquished its use, often not appreciating the reason for their failure. These errors time and truth will dissipate. Again, enthusiasts in the ranks of the profession have drifted far from conservative and wise measures in the attempt to cure incurable cases, and so the reputation of this effective remedy has suffered in the house of its friends. Those of an open mind, seekers after truth who can lay aside prejudices and watch the intelligent application of adequate quantities of potential radium in properly selected cases, will be able to estimate its worth. In the broad field of science and medicine nothing is more startling and impressive than the silent but destructive influence it exerts on lawless cell proliferation.

In this quest of truth it is my purpose to cite a few personal cases and observations of myself and others illustrative of the results obtained, and corroborating the value of this added force to the agents worthy of consideration. In so doing, a comparison of the relative merit of radium and surgery will be noted and deductions stated.

What surgery can accomplish. Surgery, by wise and adroit use of the knife, can quickly remove large areas of diseased structures, benign or malignant, which, if they were allowed to remain, would be a menace to health or a certain cause of death.

What radium can accomplish. It can destroy benign and malignant growths without pain, shock, or danger, and with cosmetic results unequalled by other methods, and often without scar. Fortunately it exercises this conservative action (within well defined limits) without injury to normal structures, the resistance of which is about six times greater than that of cancerous growth. Every surgeon of large experience meets with patients who refuse cutting operations or those who have passed the opportunity for radical cure, and are forced to abandon the case unless some alternate measure can be employed. Other patients absolutely refuse operation when indicated. It is here that radium opens a large field for curative and palliative work. It may afford substantial relief if not cure, and keep alive that vital sentiment of hope, the most precious endowment of the human soul. In any event it is the best that can be offered. Among these unfortunates are the timid souls who fear operation and dread the disfigurement that sometimes accompanies it, and the despairing who turn to it as a last hope whereby they may escape much of the suffering

*Read by invitation before the Brooklyn Medical Society, December 13, 1914.

while life remains, without a stupefying opiate. Another class, the subjects of benign growths and a variety of cutaneous ailments, find in radium an efficient remedy.

Postoperative radiation. Still another large and generally unoccupied field is postoperative radiation as related to operative surgery. Preoperative use of radium is not so well established by clinical data. The immense value of postoperative radiation in destroying lawless proliferation of cancer cells of unknown location and impossible differentiation, following operation, and in localities which for anatomical reasons are inaccessible, promises improved results and suggests a practical basis of reciprocity between surgery and this silent agent. No matter how consummate his skill and perfect his technic, the surgeon ever and always fears recurrence after extirpation of cancer by the knife. I have used postoperative radiation in nearly every cancer operation I have performed in ten years. While I cannot set a standard of action for my professional brethren, I am so fully persuaded of its efficacy that in omitting it I feel I have not met my entire obligation to my patient.

A rather commonly accepted but irrational theory is that because cancer is not always curable by radium this agent should be discarded. Because the physician and surgeon in his every day work fails to cure, does he dismiss the case or relax his human effort to relieve his patient?

Crossfire. The crossfire of the gamma rays (which cannot be deflected) concentrates and intensifies their activity, focusing their energy at points most needed, thereby greatly augmenting their penetration efficiency. This amplifies the field of their practical usefulness manifold, a fact not yet appreciated by many. In inoperable growths of the breast, sarcomatous tumors, goitres, malignant growths within the vagina and elsewhere, radium may be buried or applied at different points and produce strikingly salutary results. The period of application depends entirely on the individual case. I am now using from five to 150 mgm. of radium from five minutes to four days over the diseased parts or buried in the growth, screened by paper, lead, or rubber as indicated. The law of reaction is the governing factor in its use, and only by mastery of this art can success be attained. It is assumed a given amount of radium applied at the same distance with the same screening will produce the same results if the tissues to which it is applied, normal or malignant, possess the same resistance. When lack of uniformity in curative results is found, the inference is unmistakably that the individual resistance of the patient's tissues is one of the two controlling factors in radium therapy. Knowledge of such resistance can only be determined by actual application. Evidences of improvement are marked by diminution of odor in cases where ulceration is present, diminution in size of growth, lessening of cachexia and blood dyscrasia, increase of appetite and strength—in fine, progressive improvement in health.

Uterine cancer. Uterine cancer in its first stages is curable by prompt hysterectomy, whether corporeal or cervical, though the latter form, if of the squa-

mous cell variety, often yields to high amputation. When the opportunity for radical operation passes, radium has a field of great usefulness, sometimes curative, more often palliative. Krönig's results are very suggestive and practical: "In fifty-six inoperable cases of cancer of the uterus fifteen were healed so far as good health and histological negation were observed, the longest absence of recurrence at time of report being sixteen months." DeCourmelles reports "one hundred inoperable cases, seventy improved, with the gain held from one to four years." Jacobs, of Brussels, reports: "Among 120 cases, twenty-four cases of uterine wall cancer, all favorably affected." Krönig says he has seen a large cauliflower of the cervix replaced by normal cervix in five and one half weeks with only a delicate mark for a scar. I have repeatedly witnessed healing after amputation of carcinoma of the cervix by the Byrne method of cautery. Several of my patients are now alive and well after periods of twelve to fourteen years. Similar cases after amputation with the knife or thermocautery have healed under radium in my own experience. Hysterectomy by the most approved methods, cervical amputation with the scalpel, or Byrne's amputation, is too often disappointing and will continue to be until earlier diagnosis and prompt action gives opportunity for radical measures before the stage of metastasis.

A practitioner with large experience in the use of radium reports the cure of two cases of cervical cancer in 1905, with twenty-five and sixty mgm. of radium respectively. According to other observers, with larger doses, the number of cases cured are small.

Mammary cancer. The great frequency of mammary cancer, the most frequent variety seen at the London Cancer Hospital, is a most distressing feature of woman's lot. The cure *par excellence* is early extirpation. Unfortunately relatively few cases are seen early enough for successful operation. By early extirpation I do not refer to amputation of the breast without the careful dissection of lymphatic glands in the axilla and elsewhere after the improved technic of Halstead, Campbell, Pilcher, Bloodgood, and others. Here the reasons for after radiumization from my standpoint are of supreme importance.

Cancer of the mouth, rectum, and other mucous membranes is more difficult of cure than similar growths on cutaneous surfaces. I report two cases of rectal cancer:

CASE I. Mrs. B., aged fifty years, married, multipara, I saw with Doctor Jackman in April, 1912. The growth the size of a small pear, was just above the sphincter ani and involved the posterior vaginal wall. There was pain, bleeding, and purulent vaginal discharge, and she was weak and cachectic. Radium was applied at short intervals for a month. Pain and discharge ceased, her strength returned, and she was in comfortable health for a year. Then the disease returned and she refused further treatment.

CASE II. Adenocarcinoma of the rectum. Mrs. B., aged fifty years, unmarried. Patient of Dr. J. A. McCorkle. She had suffered from rectal hemorrhages for years, but refused examination. She was anemic and debilitated from loss of blood and had great vesical irritability. This was reflex from a rectal growth, which was removed on her entrance to the Long Island College Hospital by Dr. J. D. Rushmore, and reported by Doctor Murray, pathologist, as adenocarcinoma. No hemorrhage since removal. On September 21st, directly after the operation,

she came under my care. I gave her six radium treatments between that date and October 23d, in doses of fifty to 100 mgm. There was induration at seat of cancer two and one half inches above sphincter, posteriorly, which was extended to the left, involving more than one half the circumference of the gut. The radium was divided into two parts, one half being placed in the rectum, the other in the vagina, being in close proximity to each other, so as to secure the advantages of crossfire, thereby greatly augmenting its efficacy. On an examination being made by Doctor Rushmore and myself one week later, there was found entire abence by touch of infiltrated area. She returned to her home in a distant New England town, apparently well. The vesical irritability due to the influence of the rectal growth was arrested for a period of four days with the early application of the radium, which disappeared altogether before treatment ceased. This should be regarded as temporarily cured.

CASE III. Spindle cell bone sarcoma.¹ C. V., aged thirty-seven years, male, family history and Wassermann both negative. January 27, 1913, fracture of left hip by fall in manhole. In a few months noticed swelling over seat of fracture. On December 21st swelling extended from crest of ilium to knee; mass deeply immovable; did not fluctuate. On January 8th, after entering hospital, was growing rapidly. Coley's serum was injected daily for one week. In ten days fluctuation appeared; tumor opened in two places. Broken down tissue was removed and pathologist reported spindle cell bone sarcoma. Patient grew rapidly worse, was anemic and emaciated; fluctuation was present. Two openings, one high up on outer side of leg, the other at inner middle surface of thigh, communicated; sinus established. March 9th, forty mgm. of radium was drawn through this sinus, covered in rubber tube and removed in four hours; on March 6th, same amount of radium used for twelve hours. After second use of radium, pain and discharge lessened and the tumor had decreased one half in size. Pain greatly relieved. Hypodermics discontinued, appetite improved, hemoglobin increased, and growth remained stationary. Blood pressure dropped from 120 to 102 where it remained. White corpuscles decreased from 14,000 to 10,000, polynuclears from 71 to 40, and remained stationary; after third application of tubes were withdrawn, and, on April 15th, both sinuses closed and cicatrized. He improved in weight and color, and except for slight lump and tenderness over upper cicatrix, was apparently in normal health. Coley cites this case in his paper, *Sarcoma of the Long Bones*, in the November number of the *Annals of Surgery*, and reports the patient well on June 5, 1914. On December 3, 1914, I presented him to the Brooklyn Surgical Society, in good health. The upper portion of femur is still enlarged.

CASE IV. Madam L. D., aged sixty-nine years; goiter. Six months previously had a tumor removed from her back, which pathologist reported to be a round cell sarcoma. One month later, recurrence took place at former site, border of left scapular spine, at inner extremity, with characteristic odor. February 20, 1914, growth and remaining scar removed. Wound healed kindly, but on March 10th there seemed to be some infiltration of skin, and forty mgm. of radium were applied for two hours. On May 10th, examination shows no evidence of any return of the growth. (Cases III and IV are referred to here with Doctor Bissell's permission.)

Epithelioma is the most common form of malignancy and easiest cured by surgery and radium. I present a case showing the mastering power of radium:

CASE V. Dr. J. McH., aged forty-five years. Trinity Hospital, October, 1913. Clinical diagnosis by Doctor Bristow and Doctor Campbell, epithelioma. By Doctor Murray, pathologist of Long Island College Hospital, hyperkeratosis. Following x ray burn, six years since, left hand became edematous, livid, and greatly swollen. Doctor Bristow advised amputation. This was declined, and through and through drainage from palm to dorsum of hand was accepted. After three months' stay in the tropics, swelling disappeared. For the subsequent five years

there was continuous pain in left hand and fingers, when a tumor, the size of small chestnut, appeared on middle finger, dorsal aspect, metatarsophalangeal joint, which was excised by Dr. William Francis Campbell, surgeon in chief of Trinity Hospital, July, 1913. This refused to heal and left an exquisitely painful ulcer the size of a finger nail. While using radium in a gynecological case at this hospital, October, 1913, Doctor Campbell suggested that I apply it to this ulcer. In five minutes the patient said the pain had disappeared, but it returned in thirty-six hours. Three subsequent applications of radium were made, and in less than a month the ulcer healed with almost imperceptible scar, including the scar remaining as a result of its removal. This may be regarded as a form of recurring epithelioma. He returned, July, 1914, with a smaller ulcer on the ring finger, near last phalanx. One application of fifty mgm. of radium for ten minutes was followed by considerable reaction. The next and last use of radium was 100 mgm. for twenty minutes, more heavily shielded. A remarkable but instructive fact in this case shows that the first ulcer was healed with twenty-five mgm. of radium with equal facility as did the last with four times the quantity.

It may be remarked that, paradoxical as it may be, certain cases of malignant growth yield readily to small doses, while other cases, apparently similar, resist the curative action of many times the quantity. This, however, is not an argument for scanty use of radium. Desirable doses are those which readily demonstrate a destroying influence on malignant tissue.

Radium in nonmalignant conditions. The field for radium therapy broadens in proportion as its efficacy becomes known. This applies to tumor growths, surgical tuberculosis, lupus, and scrofula, and in internal medicine. Keloids of spontaneous growth or developing in cicatricial tissue usually yield promptly. Disfiguring scars following operation and accidental causes can be completely removed, or much lessened in size. Wickham and Degrais affirm that radium is very useful as a depilatory on the face. A vicious scar from a bungling operation for hemorrhoids was dissipated by two months' use of radium a year since, in a man fifty-five years of age under my care.

Goitre. Goitre is of so frequent occurrence that relief from any method but the knife is hailed with satisfaction, particularly in females. Resolution by radium is easier in the glandular type than in the fibrous. Goodchild, of Toronto, reports results by radium treatment of fifteen cases. Nine of them showed evidences of hypothyroidism, which were of the simple variety, in five of which the improvement was most gratifying. The nervous symptoms disappeared and the enlarged thyroids decreased to a remarkable extent. In the other cases the ophthalmic symptoms were not severe, but quickly disappeared under three series of radium treatment. Wickham and Degrais have obtained diminution in size in cases of simple goitre by radium with aid of crossfire methods. In large inoperable goitres the burying of radium tubes within the gland is reported to have resulted in cures.

I report a case illustrating the efficacy of radium in connection with surgery in diminishing hypertrophy of the thyroid, about ten months since:

CASE VI. In March last, Mrs. M., aged fifty years, under the care of Dr. William Francis Campbell, of Trinity Hospital, a patient of Dr. Everett H. Winter; a large left lobe goitre caused pressure symptoms so pronounced that he removed this lobe, which weighed one and one quarter pound. There was moderate hypertrophy of

¹St. Vincent's Hospital, *International Journal of Surgery*, May 10, 1914.

the right thyroid, which Doctor Campbell desired should be reduced in size fifty per cent. I made five applications of radium, and within less than a month its diminution was in keeping with his wishes. Her recovery was uneventful and on December 18, 1914, the gland remained unchanged in size.

Lupus vulgaris. The recent work of Wickham and Degrais is replete with reference to certain dermatological ailments. In lupus vulgaris they speak of very successful results. I have a case of lupus erythematosus now under treatment which is refractory and has not as yet after two months yielded to radium, though somewhat improved. I report a case of lupus vulgaris:

CASE VII. A patient of Doctor Scrimgeour, Mrs. H., widow, aged sixty-five years, had a patch on right temple involving outer canthus of eye following a burn of many years' standing, which failed to respond to x ray and prolonged constitutional and local medication. It was circular in form, measuring two and one quarter inches with a scar from a burn in the centre the size of a half dollar. Itching and irritation were persistently annoying. After ten treatments of from forty to 100 mgm. of radium, covering a period of forty days, the eruption had disappeared. The diagnosis and results were confirmed by Dr. Emil C. Bernaur, a dermatologist of this city.

Radium in uterine hemorrhage. Kelly and Burnham in a recent article (*Journal A. M. A.*) assert the great efficacy of radium in several varieties of uterine hemorrhage of diverse pathogenesis not due to malignancy, pregnancy, or inflammation of the annexa: First, myopathia hemorrhagica, with almost no pathological findings; second, bleeding in young girls; third, polypoid endometritis; fourth, myoma causing hemorrhage and pressure. In most instances the application is preceded by curettage and free cervical dilatation and applying the radium within the cervical or uterine canal. In fibroids, the ovaries, not the uterus, are the point of attack. That radium has powerful hemostatic properties I have repeatedly demonstrated. Later I hope to report my results.

Evidence is not wanting of its usefulness in other nonmalignant neoplasms and conditions. In this category are naevi, angiomas, flat and erectile; keloid and disfiguring scars; tuberculous glandular growths, and lupus. Tuberculous glands when not caseating respond to the gamma rays, as do such other dermatological conditions as papillomatous warts, acne, eczema, psoriasis. Some of these lesions, it must be remembered, may be malignant. One case of eczema over the shin bone of a man aged seventy years, disappeared in eighteen days after a single application of radium.

Radium water, which may now be had, containing a definite amount of radium element, and radium emanations for inhalation have an established therapeutic reputation. In some cases of nephritis and diabetes, radium water proves efficacious.

Chronic rheumatic rheumatoid and traumatic arthritis. The efficacy of radium in these varying forms of arthritis by intravenous injection is startling and impressive. In such cases the disability, pain, and deformity make the patients objects of commiseration. A few injections of fifty to 100 micrograms is often effective. I have had the opportunity of watching such cases in St. Vincent's Hospital. One a woman of about forty-five years, over two years helpless in bed, with distorted limbs, had so regained her power of mobility as to be able

to get out of bed, and was practically without pain. Sixteen cases of polyarthritis and oligoarthritis treated in the free radium clinic at Pittsburgh by intravenous injection, showed the following results: temporarily cured four; considerably improved eight; improved two; not improved two. The term "temporarily cured" was used in a precautionary sense, as evidence of permanency was not yet established. Its present degree of success is most encouraging. It also applies to chronic forms of articular rheumatism, and it is found useful in neuritis. Consummate care is needful in the technic of its use, owing to liability of disintegration of the salts on the slightest chemical provocation. This brings hope to a class of cases usually regarded as almost, if not quite, hopeless.

Restoration of function by radium. The *modus operandi* of radium is not understood. The impressive fact remains of its great restorative potency. It has a positive influence in restoring the functions of fibrous structures. Used both locally and by intravenous injection, it proves its efficacy in chronic inflammatory involvements.

Its power as a hematinic is proved by blood tests after its entrance into the circulation, and as a remedy in arteriosclerosis it gives promise of great usefulness by diminishing blood pressure. When radium salts are introduced mechanically into the circulation, the greater part is deposited in the marrow of the long bones, thereby producing a reservoir for its prolonged activity, from which its emanations are constantly distributed through the blood currents.

The analgesic effect of radium is little appreciated because little known, lasting hours, days, and weeks in many cases, both operable and inoperable, and is entitled to consideration. In a case of cancer of the tongue and throat, W. W. C., aged fifty-two years, a patient of Doctor Scrimgeour, radium applied persistently in quantities up to 100 mgm. failed to cure, though at times the case seemed promising. I regret I did not bury the radium in the tongue for several hours, as experience shows cures when it is thus applied. From late in June last he discontinued the use of opiates he had taken to relieve pain, until the time of his death early in August, which is a striking instance of the analgesic power of radium. The case of Mrs. J. K., aged thirty-three years, of Jersey City, may be mentioned, a patient of Dr. John O. Polak. She came under my care two months ago with inoperable uterine cancer, the treatment being wholly palliative. She is almost free from pain for sixty to seventy-two hours subsequent to the application of fifty to 100 mgm. of radium. Treatment of cases like this may not add to the reputation of the attendant, but it is a boon to the sufferer. The analgesic and decongestive influence of radium is shown in neuritis and neuralgias, which I will not pause to illustrate by case reports. I desire to give special emphasis to the imperative need of scrupulous care of the patient's nutrition and hygienic surroundings, a matter, it is feared, which is too often overlooked.

Finally, it is to be mentioned that radium may be hurtful as well as beneficial; too small quantities may stimulate, rather than retard or destroy cancer growths. Through overdoses or lack of care in its

application, radium may penetrate hollow organs as the bladder and intestines, or do irreparable damage to normal structures and nerve trunks, sometimes causing septicemia by too rapid destruction of normal and malignant tissues.

CONCLUSIONS.

1. The destructive power of radium on cancer cells is well established.
2. The employment of radium in cancer is not in conflict with surgery, but both possess distinctive fields of usefulness, each having its limitations; they are largely supplemental to each other, and there is ample opportunity for cooperation and reciprocity.
3. Large, operable malignant growths should be removed by the knife.
4. The analgesic power of radium is one of its most precious properties.
5. Want of confidence in radium arises from the use of low grades or spurious products, and from want of knowledge and skill in its application, together with the exaggerated, conflicting, and false reports so constantly current.
6. Postoperative radiation is of great usefulness, and rapidly coming into professional use at home and abroad, being commended by prominent authorities, who not long since were unconvinced of its curative and palliative powers.
7. Crossfire application of radium increases its efficacy and aids by its multiple application in securing deeper penetration of large areas than by ordinary methods of application.
8. As in surgery so in the application of radium, disappointment is likely to follow too optimistic expectations of recovery.
9. In proportion as metastasis is present, the chances of cure diminish, and in turn delayed diagnosis is often responsible for metastasis.

APPENDIX.

Abstract from the annual report, Radium Institute, London, by the superintendent, Doctor Pinch, for the year 1913.

Epithelioma.—The results in the treatment of epitheliomata affecting glabrous surfaces call for no fresh comment, and in suitable instances removal of the growth by radium may be confidently anticipated.

The buccal, lingual, and pharyngeal mucous membrane is still refractory and disappointing, but a new method of healing cancer of the tongue by burying it within the carcinomatous mass up to 100 mgm. properly screened has given distinctly encouraging results.

Carcinoma of Uterus still continues to yield more gratifying results in inoperable cases far advanced than by any other known medical or surgical method. Used after Wertheim's operation small quantities of radium, not exceeding fifty mgm. should be employed.

Carcinoma of Breast.—Many cases show great susceptibility to radium. The primary growth becomes smaller, infected glands and subcutaneous nodules lessen, or perhaps disappear. It is also applied as a last resort.

Carcinoma of Rectum.—Results not very satisfactory. The routine method consists of 30 hour exposures—5 days of 6 hours each—up to 100 mgm. of radium, depending on susceptibility of patient; the series of exposures being repeated at the end of 6 weeks.

In the most favorable cases carcinomatous material shrinks and becomes replaced by dense fibrous tissue.

Carcinoma of Prostate.—Number not large, but benefit has been noted in all of them. Fifty to 100 mgm. used.

Carcinoma of Bladder.—Nine cases treated, and in six the results have been most gratifying, by use of fifty mgm. of radium.

Rodent Ulcers, when of the hypertrophic nodular type, yield extremely well to radium. The excavating type is very intractable.

Sarcomata do well under radium if taken early, before metastasis. Bury radium salts, or radium emanations should be resorted to whenever practicable, properly screened. Lymphosarcomata give excellent results.

Lymphadenoma, when confined to one or two small superficial areas—disappearance is frequently brought about by radium.

Bleeding in Fibroid Disease of Uterus is favorably affected by radium but seldom changes size of uterus. Exposure (up to 100 mgm.) from 30 to 60 hours, in 5 to 10 days, and the series repeated often 5 or 6 weeks. First symptoms of improvement is checking hemorrhage, until flow ceases or becomes normal.

Flat Superficial Nævi capillary nævi, "port wine stains," if blanching by gentle pressure is readily effected, the results of treatment will probably be satisfactory.

Cavernous Nævus is excellently improved under radium where crossfire radiation is possible.

Warts and Papillomata yield readily to short exposures—20 minutes to one hour. The reaction is slight and scarcely noticeable.

Tuberculosis of Glands not ceasing where surgical measures have been declined for cosmetic reasons, radium proves of considerable value. Heavily screened exposure for 30 or more hours should be resorted to.

Skin Diseases. Keloids continue to give most excellent results.

Lupus Erythematosus, though very intractable and puzzling, often responds favorably to radium, even after all routine methods have failed.

Psoriasis and Chronic Eczema generally yield to short unscreened exposures, given on three successive days, the series of exposures being repeated at intervals of a fortnight.

Pruritus.—The analgesic effect of radium is often of the greatest use in this disease, affording a degree of relief unattainable by any other method.

1050 PARK PLACE, BROOKLYN.

SHOULD A NEWBORN INFANT RECEIVE ANYTHING DURING THE FIRST TWO OR THREE DAYS?*

BY CHARLES HERRMAN, M. D.,
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During the last seven and a half years I have had the opportunity of observing about 3,000 newborn infants from day to day in the maternity department of the Lebanon Hospital. For this opportunity I am indebted to the courtesy of the attending obstetricians, Doctor Waldo, Doctor Seeligmann, and Doctor Rongy. It must be evident to all that the best results can be obtained only when obstetrician and pediatricist work hand in hand. In hospitals which have maternity and children's wards, the pediatricist should also have at least the supervision of the care of the newborn, and in maternity hospitals an attending pediatricist should be appointed not only to see the unusual cases, but to make daily rounds just as he does in the children's ward. Anything which may help to reduce the very great mortality during the first two weeks, even slightly, is of importance. Therefore in the limited space at my disposal I should like briefly to discuss the question, Should a newborn infant receive anything during the first two or three days? Practi-

*Discussion on a joint paper on the Institutional Mortality of the Newborn, by Dr. L. Emmett Holt and Miss Helen C. Babbitt, at the fifth annual meeting, American Association for Study and Prevention of Infant Mortality, November 12, 1914.

cally all authors answer emphatically, No. But because a statement has been repeated with emphasis a number of times it does not necessarily follow that it is correct.

The reasons usually given are: 1. If food was necessary nature would have put it in the breast sooner. 2. The digestive tract of the newborn babe is incompletely developed. 3. The normal development of the intestinal flora must not be disturbed. 4. Newborn babies that receive something do not thrive better and frequently have disturbances. 5. Universal custom among savage tribes.

1. Nature would have put food in the breast if needed. It is a well known fact that the initial loss in weight in the newborn is greater with primipara than with multipara. In the first baby the initial loss will be, say, ten ounces, the second eight ounces, and the third six ounces. Why? Because the mother has breast milk sooner and in greater quantity. If nature was right with the third baby, she must have been wrong with the first. We could probably rely upon nature entirely if we were dealing in all cases with perfectly normal mothers and perfectly normal infants. If we are following nature, why not follow the newborn baby's cry. It cannot be due to indigestion since ordinarily it receives no food during the first twenty-four hours.

2. If the digestive tract is able to take care of colostrum on the first and second day and breast milk on the third, it cannot be so extremely sensitive, and it is difficult to conceive of any remarkable change taking place in forty-eight hours.

3. In my tests I have used a solution of milk sugar. As colostrum and breast milk both contain from three to six per cent., it does not seem likely that it will disturb the normal growth of the intestinal flora.

4. I shall show later that in many respects the newborn infants do better when given something, and in my experience at least they have had no disturbances that could be attributed to the solution of lactose.

5. Universal custom is often incorrect. It would not be difficult to cite examples. Czerny and Keller, who are the strongest advocates of the "give nothing" method, admit that in animals the young suckle very much sooner, that the initial loss in weight is therefore less, and is regained much quicker than in human offspring. On the other hand, they say that among savage tribes it is customary not to give anything additional. Now it is true that what may be good for animals may not be good for human beings, but if I had a choice between following the example of the so called dumb animals and savages, I should unhesitatingly follow that of the former.

It is said that newborn babies that receive nothing show no signs of injury. To a certain extent I think we may compare this to feeding in typhoid fever. Even with the method of partial starvation a large percentage of patients recover, but all who have employed the method of more liberal feeding will agree that the patients have complications no more frequently, are better able to resist complications when they do occur, and are in a better condition at the termination of the disease because they

have lost less weight. The average infant can stand an initial loss of ten or twelve ounces without any *apparent* disadvantage. The same cannot be said of premature or congenitally weak infants. This is pretty generally acknowledged, so that in the latter early feeding is advised. But if an abnormal infant can stand it, why not a stronger one? It ought to be advantageous to reduce the initial loss; in some cases the loss of a few additional ounces might be enough to turn the scale. If the practitioner gets the impression that the giving of anything during the first forty-eight hours is injurious or unnecessary, he may hesitate to give those who really need it. *Water* certainly is necessary. It is usually advised to give a teaspoonful now and then. The result is that in a maternity ward it often happens that the newborn infants get none, or at most an ounce or two a day. Any one who has observed newborn infants carefully, must have noticed that on the third day after they have lost ten or twelve ounces, the tissues show a distinct loss of tone. This cannot be entirely harmless even if in most cases the injury is not strikingly apparent.

During the last five months I have employed the following method in 200 newborn children. Six hours after delivery, the baby is put to the breast and thereafter regularly every three hours during the day. It remains at the breast for five minutes, and is then given one and a half ounce of a ten per cent. solution of lactose after each breast feeding. This is usually continued for the first forty-eight hours. If the mother has an insufficient quantity of breast milk, and no other mother in the ward is available for breast feeding, the supplemental feeding with a solution of lactose is continued for one or two days longer. It has been found that a newborn child needs from twenty to twenty-five calories to each pound of weight per diem during the first few days to meet the energy requirement, so that the average newborn baby would need about 150 calories a day. The foregoing method just about supplies that amount. The result has been:

1. A reduction in the average initial loss from eleven to six ounces.

2. An increase in the percentage of cases regaining their birth weight after ten days, from thirty-five to sixty-five per cent.

3. No inanition fever since the introduction of this method.

4. The infants have been followed through the first month and have retained their advantage, compared with control cases in which the old method was employed.

5. I have seen no disturbances that could be attributed to this method. After this method had been employed for a short time I found through an editorial article in *Journal A. M. A.* for August 1, 1914, that Bailey and Murlin had published observations from the maternity wards at Bellevue Hospital on The Energy Requirements of the Newborn (Proceedings of the Society of Experimental Biology and Medicine, xi, 109, 1914). They conclude "that feeding the newborn infants for the first three days, in addition to the breast secretion, a formula of about the same composition as colostrum would appear to be a logical proceeding, not

only to fulfil the energy requirements, but also to supply the water lost." I have used a solution of lactose because of the simplicity of its preparation. Lactose is normally present in colostrum and breast milk, and can easily be obtained pure. My results are, I believe, as favorable as those of Bailey and Murlin with a formula of about the same composition as colostrum.

250 WEST EIGHTY-EIGHTH STREET.

OSTEOARTHRITIS IN TABES DORSALIS.

By JAMES R. MARTIN, M. D.,

Philadelphia,

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The purpose of this communication is to present the report of a case of Charcot joint which, though it evidently was not the initial symptom, was the first manifestation of tabes dorsalis. In this patient, who was treated in the orthopedic dispensary of the Jefferson Hospital, the correct diagnosis was overlooked for some months, which proves that cases of apparently simple monarticular osteoarthritis may, in reality, be arthropathic joints.

CASE. Patient, M. D., man, aged forty-seven years, native of Italy, and a laborer by occupation. Family history, as far as obtainable, negative. Personal history: Had usual diseases of childhood, otherwise good health until the age of forty-one years. At that time had an eruption on skin, which was mainly confined to his face and chest and was maculopapular in character. He applied at a hospital dispensary for treatment and after several weeks of treatment the eruption disappeared. A year later, the patient was admitted to a local hospital, where he was told that he was suffering from a distended and enlarged abdomen due to "water" from an enlarged liver. He was given, at this time, an intramuscular injection of the emulsion of salvarsan, after which the enlargement of the liver and distention of the abdomen gradually diminished and disappeared. He had no recurrence. Patient was a moderate user of beer, seldom touching the stronger alcohols.

Present trouble: About twenty months ago patient tripped and fell down several steps, landing upon his hands and knees. He was not particularly inconvenienced at the time, but he noticed, the next day, that his left knee was swollen and pained him on walking. He persisted, however, for a day or so and then had to stop on account of the severe pain. He was under the care of a practitioner, and in a week or so was able to walk with the aid of a cane. It was at this time (July, 1913) that he went to the orthopedic dispensary of the Jefferson Hospital. He stated that he had pain in his left knee and there was found, upon examination, an effusion of the joint and a slight genu varum. A radiograph was taken by Dr. W. F. Manges, which apparently revealed a typical osteoarthritis of the knee. The synovial membrane was somewhat thickened, and the presence of small osteophytes were noted. The patient was treated for this condition, coming to the outpatient department irregularly during the summer, but no improvement was observed in the knee; instead, an increase in the angle of the genu varum developed.

In the fall, on account of this progressing deformity of the knee joint and the failure to respond to appropriate treatment, the patient was again examined and the following was found: A fairly well developed and well nourished adult; temperature, pulse, and respiration practically normal. An examination of the organs of the chest and abdomen revealed nothing abnormal, except some impairment of resonance at the apices of the lungs.

The motor symptoms presented were peculiar gait and incoordination. His gait was a swaying and swinging one, with a tendency to hold his legs and feet rather wide apart. He apparently used his cane not only for support, but for guidance as well. There was some incoordination of the movement of the legs; no wasting of the musculature of

the lower extremities; some loss of power in the affected extremity owing to the deformity. Romberg's sign was positive.

The sensory symptoms that were presented were, first and foremost, the loss of the tendon reflexes at the knee joint; there was some slight loss of sensation on the plantar surface which extended up the inner surface of his ankles and legs. Pain was felt in and around the affected knee joint. It was usually described as being of a dull and aching character, but occasionally was acute and stabbing. This pain was more severe during damp and cold weather. The pain was seldom severe enough to cause the patient to lose sleep.

Eye symptoms: The pupils were unequal in size, the right being larger than the left. The right pupil failed to react to light and the left reacted sluggishly. Both reacted to accommodation.

No history of any derangement of function of bladder or bowel could be obtained; no visceral symptoms were present.

An examination of the left knee showed a moderate degree of genu varum; no limitation of motion, but rather more mobility than normal on lateral movements. The patella was free. The joint was larger than normal, especially around the head of the tibia where bony proliferation had taken place. A Wassermann examination proved negative. The blood examination proper showed a slight diminution of the number of erythrocytes and a hemoglobin of but seventy per cent. The examination of the urine revealed nothing worthy of note.

Another radiograph was taken by Dr. W. F. Manges and, in connection with the clinical history of the patient, proved conclusively that the correct diagnosis was a Charcot joint. The cartilages were thickened. There was a development of a large amount of bony tissue which, in certain places, was outside of the joint and entirely separate from the bones. The head of the tibia showed destruction, the internal condyle being crushed thereby, producing a partial dislocation of the knee joint.

It can readily be seen that this case apparently began as an osteoarthritis and, as the interpretation of the radiograph was at first quite clear and conclusive, was considered as such. This case might be looked upon as one of a type according to the view of Hoffa and Wollenberg, who maintain that tabetic arthropathies are examples of osteoarthritis occurring in cases of locomotor ataxia. At all events it brings to mind the close relationship of osteoarthritis to diseases of the central nervous system.

It is of especial interest to note the danger of relying upon radiographic interpretation dissociated from the clinical analysis. Experience has thoroughly demonstrated that a definite decision can be reached only by the correlation of all the obtainable data. In this instance the ataxic symptoms were not sufficiently conspicuous to attract attention when the patient was first seen, and six months later were observed only because of more complete and thorough examination. In the light of later developments it is now apparent that the ataxic condition long preceded the development of the joint manifestation, and therefore was in accord with Charcot's astute observations. There can be no excuse for overlooking or failing to find symptoms of the character here noted other than placing too great reliance upon demonstrable lesions as interpreted by radiography. The lesson is such an important one that it is deemed worthy of emphasis to aid in the avoidance of similar omissions.

McCrae classifies osteoarthritis as a hypertrophic type of arthritis deformans, and describes changes in the synovial membrane, cartilage, and bone in varying degrees of involvement, adding that in advanced life the lesions are often more suggestive of

a degenerative than an inflammatory change. He states that the pulse, temperature, and respiration are not likely to be disturbed in this type, and the general condition is less likely to suffer. He cites the following symptoms and signs: Pain and stiffness; difficulty in going up stairs, kneeling, or rising from a sitting to a standing position; a feeling of uncertainty; the joint rarely showing much swelling; there being little restriction of motion in the early stage, and on moving the affected joint, a grating sound is produced by the bony outgrowths.

The majority of writers agree that Charcot's joint disease is a destructive process, generally associated with locomotor ataxia and other spinal cord and spinal nerve diseases, and that it is, at the beginning, in many respects similar to osteoarthritis. The knee is most frequently attacked, but other joints may suffer; it is almost always monarticular. The condition is at times sudden in onset, occasionally swelling in a comparatively few hours. In the early stages swelling is marked and is due to effusion in the joint and edema of the adjacent tissues. Pain is generally slight or absent. Later, the joint disorganizes and, once begun, the process advances with much rapidity. Bony masses form around the cavity, in the cartilages, in the tendons, and in the fascias. The bones and cartilages are destroyed, and it is at this stage that fractures and dislocations are likely to occur. The essential character of the affection is the rapid melting away of the cartilage and bones and the joint changes may be present at an early stage of the nervous disorder.

2009 COLUMBIA AVENUE.

DECAPSULATION OF THE KIDNEY.

By R. R. HUGGINS, M. D.,
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Sixteen years have passed since Edebohls performed the first deliberate operation for the cure of nephritis. Two years before Mr. Harrison had called attention to the cure of albuminuria in some patients where operation had been done for supposed stone in the kidney, but exploration had revealed the absence of stone or other operable condition. The operation consisted of incision of the kidney followed by drainage. He concluded that recovery was due to relief of tension and congestion, in this way allowing the renal circulation to be restored. In a later paper,¹ he announced the belief that engorgement of the renal tissues is the most important factor in the production of nephritis and that it might be relieved by incision and drainage.

Edebohls conceived the idea that decapsulation was followed by a new blood supply to the kidney which, arising from the perinephric area, attaches itself to the denuded kidney. He argued that by this means the diseased renal tissues were gradually restored to normal condition. When this novel procedure was announced, unusual interest was at once awakened in different parts of the world and many of the leading surgeons operated for the cure of chronic nephritis. Much experimental work was

done in the endeavor to formulate definite ideas as to how cure could be effected. All forms of nephritis, acute and chronic, without discrimination, were subjected to the operation, and it was not long before many discouraging reports were received, and, as so often happens in the treatment of disease, a procedure which promised a brilliant victory went down almost to defeat under scathing criticism.

Sufficient cases have been reported to show beyond doubt that surgery will not cure the ordinary case of chronic nephritis, whether of the interstitial or parenchymatous variety, but evidence that it is of value under certain conditions is being gradually accumulated, and this important fact cannot be summarily dismissed without careful consideration. The theory that decapsulation is followed by a new blood supply which penetrates the denuded kidney, thus bringing about recovery, does not seem reasonable and in fact has been disproved by the experiments of Reis, Claude, Tuffier, Murard, and others.

It is much easier to follow the reasoning of Harrison, viz., that improvement comes from relief of tension, in this way removing mechanical obstruction to function. Decapsulation and nephrotomy overcome the effects of congestion of the kidney with its inelastic capsule and reduce the intrarenal tension. As a result of the hemorrhage and abundant drainage, the system is relieved of toxins that have accumulated in the blood, and it may be true that capillary paralysis which prevents serous transudation is thus terminated. This is particularly true in acute infectious nephritis. Here the kidney is swollen and enlarged and is compressed within its unyielding fibrous capsule; the circulation and the excretion of urine are interfered with. Decapsulation relieves the tension and, even after complete anuria, a marked secretion of urine will in some cases almost immediately follow the operation. The fact that sclerotic and degenerated tissues cannot be returned to the normal by either medical or surgical measures, is well recognized. Tissue that has been destroyed cannot be replaced, because regeneration of kidney epithelium does not occur, but injured cells may recover if given some assistance. New diagnostic methods, such as cystoscopy, ureteral catheterization, estimation of kidney function, and improved ideas in the relationship of infection to diseases of the kidney, have changed the picture of nephritis somewhat. We have learned that it may be unilateral and the organ may be only partially involved; that a nephritic kidney may excrete urine free from albumin and casts; and that there are forms of nephritis which are characterized principally by pain and hemorrhage.

When we think of chronic interstitial nephritis with its local renal fibrosis, its wide spread cardiovascular changes, the toxic origin of the disease, and the influence of heredity, it is impossible to see how any method of treatment, surgical or other, can affect the course of the disease. One is forced to ask, even in cases where improvement followed surgical measures, whether it all might not have been due to the natural variability in symptoms which often occurs in chronic nephritis independent of any treatment. While there is no scientific proof that surgery or any other form of treatment will

¹NEW YORK MEDICAL JOURNAL, JUNE 9, 1907.

cure nephritis, reports in literature show marked improvement after operation, and in some instances interesting clinical observations have been made that warrant careful attention.

It is apparent that after medical means have failed to bring about improvement, we are in certain cases justified in considering the advisability of surgical measures, not with the idea of converting tissues hopelessly diseased into normal ones, but rather in the hope that through drainage and relief of tension, cells not completely destroyed may be enabled at least partially to resume their proper function. This opinion is justified by the fact that improvement is more likely to occur in acute toxic nephritis or in what may be acute exacerbation in the chronic form. It seems in the study of some of these cases that the little additional help which comes from the relief of tension and drainage, may tide the patient over a critical period and permit further prolongation of life. The large amount of scar tissue present about the kidney in cases operated in by the writer, proves that the inflammatory reaction, as a result of the infection, is very extensive in some instances. The freeing of the kidney from a bed of dense connective tissue may assist in restoring function. It is the consensus among those who have operated and given careful study to the case, that the nephritic process itself is not permanently influenced, and although the general health is improved, the signs of nephritis, as shown in the urine, persist. It is therefore regarded as a temporary life saving measure in certain forms of oliguria, especially with uremia in acute nephritis, and in this case it is thought by some to have a favorable influence on the nephritis itself.

Tisseraud reports two cases of acute nephritis from mercurial poisoning. Both patients died, but the prompt return of urination after the decapsulation demonstrated the benefit derived from the operation. He concludes that it should be done as a routine procedure in every case of nephritis from poisoning as soon as anuria occurs. Results lead to the belief that in acute nephritis following the infectious diseases, the kidney should be decapsulated when internal remedies fail to improve the oliguria or the uremic symptoms. Experiments have demonstrated, in nephritis produced by cantharides in rabbits and dogs, that those subjected to decapsulation were saved in the majority of instances, while the controls died. It is also true that the most encouraging reports are of young persons or children. It is in these cases, particularly when the disease follows scarlet fever, in which there is a rapid diminution in the urinary output, with the presence of blood and large quantities of albumin, complicated by coma or convulsions, that we find the most wonderful results reported.

In certain cases of eclampsia when the symptoms have been due mainly to disease of the kidneys, and relief was not followed by delivery of the child, some brilliant results are reported. On the other hand, it has been a disappointment in many cases. This is not difficult to understand when we consider that organs other than the kidney are at fault in the great majority of cases. Certainly no aid could be expected from a surgical procedure upon the kidney, when necrosis is already present in the liver.

It appears from a careful review that decapsulation and nephrotomy are entitled to a place in the treatment of nephritis. The success and value of the operation will depend entirely upon the care and judgment with which cases are selected, we being mindful at all times that the immediate mortality must be high, and the use of the scalpel occupies the same position as do diuretics or hot baths; it is not curative, but is a measure indicated in the emergency with a hopeful prospect of prolonged life. It is not to be used until all other methods have failed, and when employed it must not be done indiscriminately. Its use seems to be indicated:

1. In toxic nephritis following acute poisoning by mercury or carbolic acid.

2. In nephritis following infection, especially the acute infectious diseases, such as scarlet fever, etc., where there is great edema or in the presence of uremia; its use should be considered as soon as medical measures have been thoroughly tried without relief. This is true especially in young adults and children.

3. In severe hemorrhage complicating chronic nephritis, when the bleeding is practically limited to one side. In these cases a nephrotomy should be done to make sure of the exact cause of the hemorrhage.

4. It may be indicated for the relief of renal pain which sometimes occurs in the course of chronic nephritis.

5. It may be of value in uremia and anuria during the course of chronic nephritis, merely as an emergency measure.

6. In eclampsia, when the symptoms are due to faulty action of the kidney, and where improvement does not follow delivery of child.

7. Cases of movable kidney associated with albuminuric casts and hematuria, where the urinary signs result from the trauma incident to the mobility, may be cured by decapsulation and fixation, but when coincident with chronic Bright's, only temporary good is effected.

CASE I. Miss G. L., aged fifteen years, German, admitted to hospital, August 10, 1911; typhoid fever. After running a course moderate in severity, complicated by a thrombophlebitis in both limbs, she was discharged October 21, 1911. At the time of discharge there was considerable swelling of both limbs as a result of the phlebitis. Urine analysis showed the presence of albumin and casts, but condition otherwise was fairly good. March 5, 1912, the patient was readmitted complaining of constant headache, frequent vomiting, and aggravation of the edema. General anasarca present. Abdomen full of fluid, eyelids edematous. Urine showed the presence of granular and hyaline casts and heavy cloud of albumin. Patient remained in hospital under treatment with little improvement and was discharged July 14, 1912, her condition being about the same as it was on admission. August 27, 1912, the patient was again admitted, complaining of pain in back over the region of kidneys, constant headache, edema of the eyelids and extremities much more marked than when she left the hospital in July. Patient remained in hospital during the fall and winter. In September, patient had a number of convulsions, which were followed by coma. Her condition did not improve and she continued to complain of intense headache. There was no improvement in the swelling, the abdomen filling with fluid until the respiratory movements were seriously disturbed. The blood pressure varied from 180 to 200 and on March 3, 1913, the hemoglobin was forty per cent., red corpuscles 3,000,000. Patient received hot baths and every known method of treatment for such condition throughout the illness, but in spite of all treatment was steadily growing

worse. The total urea output was less than nine per cent. The phenolsulphonephthalein test showed only six per cent. in two hours. After one hour and forty-five minutes, the urine was clear after the injection of indigo-carmin. Urine still loaded with albumin and casts. As a last hope on March 15, 1913, a double renal decapsulation was done.

The operation was done under local anesthesia with ether. The kidneys were surrounded by a large amount of scar tissue and were freed with difficulty. One did not fail to be impressed by the fact that such a condition could only follow an extensive inflammatory change and that the primary infection was severe. The kidney capsule was also adherent, and separation was followed by considerable hemorrhage. Section from the kidney showed a great amount of interstitial change.

Very much to our astonishment, the patient withstood the operation fairly well, and a note made April 4, 1913, states slight improvement in general condition since operation. Patient remained in hospital until July 22, 1913, when she was discharged. There has been a continued improvement in her general condition. The headaches were less severe, and while the limbs were still swollen, the edema of the face and the fluid in the abdomen had almost disappeared. The blood pressure still remained high, being 170. There was little change in the character of the urine. The patient was observed March 25, 1914. At this time all the swelling had disappeared, except a slight amount of edema about the ankles due to the phlebitis. Patient had been working for the last two months and felt very well. Blood showed hemoglobin 75, red corpuscles 4,200,000. The urine showed little change, still many granular and hyaline casts with moderate amount of albumin. Indigo-carmin test showed color in the urine at the end of fifty minutes. Unfortunately the phenolsulphonephthalein test was deferred to a later date, and before it was done the patient contracted acute lobar pneumonia and promptly died, April 15, 1914.

The impression gained from the experience in the treatment of this patient led to the belief that the decapsulation was of great benefit, and that if it had been done earlier the result might have been better. Even though the urine continued to show the same evidence of nephritis, the improved condition of the patient in a general way and the evident improvement in kidney function are factors that cannot be dismissed without recognition.

CASE II. Miss H., aged seventeen years, admitted to hospital, March 10, 1907. In September, 1906, had a severe attack of scarlet fever which was followed by nephritis. This was accompanied by swelling of the face and limbs and finally ascites, the fluid filling the peritoneal cavity. Severe headaches were present. Uremic convulsions followed by coma threatened her life several times, and in spite of all medical measures her condition gradually increased in severity, and there seemed but little hope for her recovery. Decapsulation of the kidneys was proposed as a last resort and accepted.

The operation was performed March 15, 1907, under local and ether anesthesia. The kidneys were both much larger than normal and firmly adherent. The patient made a good recovery from the operation, and thirty ounces of urine were passed in the first twenty-four hours. The urine had been loaded with casts and albumin from the onset of the illness, and at times the total quantity was exceedingly small. This was true immediately before the oper-

ation when there was almost complete anuria, and the large amount excreted during the first twenty-four hours after the decapsulation was quite remarkable. The patient gradually improved in a general way, and in June the headaches had disappeared and the swelling of the limbs and face was almost gone. During the next year the patient continued to improve, and so far as the general health was concerned she seemed well. There was considerable improvement in the urine, but it still contained much albumin and many granular and hyaline casts. The patient moved to Oklahoma, and after a few months I was unable to trace her. The decapsulation of the kidneys in this patient seemed to be of temporary benefit and undoubtedly prolonged her life.

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1018 WESTINGHOUSE BUILDING.

PITUITARY EXTRACT IN POSTOPERATIVE INTESTINAL STASIS.*

BY RALPH DUFFY, A.B., M.D.,
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The use of pituitary extract in intestinal stasis is a natural deduction from a knowledge of its physiological action. Briefly this action is as follows: 1. Rise in blood pressure, with slowing of the pulse; 2, contraction of uterus and intestines; 3, diuresis. In general its entire action in the body is due to the stimulation of smooth muscle in the various parts. Its action, therefore, is not more specific upon the intestines than upon the uterus or bladder.

Von Frankl-Hochwart and Froehlich (1) were the first to suggest its use clinically in intestinal stasis. Their suggestion arose from the marked stimulation of peristalsis which they observed in dogs and cats. Franchini (2) also on the basis of animal experimentation emphasized the increase in peristalsis from pituitary extract. In 1909, Blair Bell (3), of Liverpool, published the results of his experiments, which led him to use the extract in postoperative stasis. He states: "I have now used the extract for intestinal stasis in a fair number of cases, and I have never known it to fail." Bell's paper is the earliest I have been able to find on the clinical application of the drug in stasis.

Bell cites in detail but very few cases. Part of his paper is given up to the use of pituitary extract in shock. He gives one case history of a very bad case of obstruction of five days' duration, in which operation failed to give relief. In this case, flatus was passed five minutes after the injection of pituitary extract, which was given as a last resort. In one hour's time a second injection was given and the patient passed a fluid stool five minutes thereafter. The remedies used before the pituitary extract were

*Read before the F.P.P.A., County Medical Society, Tampa, September 25, 1914.

calomel, cajuput oil, glycerin, per rectum "and various other drugs." Bell injected the extract intramuscularly. The dose in terms of the dried gland is not given in his paper.

Klotz (4) reports on eighteen cases of postoperative peritonitis treated with pituitary extract. He used the drug to combat shock. As a side issue he comments on the increased diuresis and peristalsis caused by the drug. Six of the eighteen patients passed flatus (two cases) or flatus plus feces (four cases), either during or within thirty minutes of administration. It does not appear, however, that any of his patients were suffering from intestinal paresis. Two of the six received one ampoule each; four received four ampoules each. No intestinal effect was reported in the twelve remaining cases. Klotz used the one c. c. ampoules of an English firm (one c. c. equalling 0.2 gram of the dried gland). The injections were intramuscular and intravenous.

Jaschke (5) used pituitary extract in a series of forty-four gynecological cases for the sake of its diuretic action, and to avoid the use of the catheter following operation on the pelvic organs. He comments on the increased peristalsis caused by the drug, but gives no details. Bidwell (6) used pituitary extract in twenty cases of laparotomy to prevent intestinal stasis. He found the results very gratifying. None of the patients had tympanites, and the early passage of flatus was a marked feature. One c. c. doses were used six, twelve, and eighteen hours after operation.

Hill (7) has used the extract in over 800 cases to prevent or combat shock. He comments on the increased peristalsis caused by the drug, but gives no details. He used pituitrin and gives one c. c. hypodermically every three hours for four doses. Bishop (8) and Renton (9) also report gratifying results from the use of pituitary extract in stasis.

Houssay and Beruti (10) have used pituitary extract in 200 cases for its intestinal effect. Eleven cases were of postoperative ileus. They consider the drug the most powerful enterokinetic known. Their conclusions are as follows: 1. The effect of the drug is almost constant; 2. it should be given subcutaneously, never intravenously nor by mouth; 3. larger doses are necessary than in obstetrical practice; 4. no ill effects were observed; 5. results occur, if at all, within one hour of administration.

Porrit (11) gives full histories of two cases, both of suppurative appendicitis. After operation no evacuation could be obtained with calomel and enemata. There was distention and persistent vomiting in both cases. Peristalsis was set up and the symptoms were relieved in the first case by the subcutaneous injection of 0.5 c. c. pituitrin. Flatus passed in an hour, and an enema brought a copious movement. In the second case one c. c. pituitrin was given and flatus passed in thirty minutes. In twelve hours the dose was repeated and the bowels acted within an hour.

Harvey (12) cites fourteen cases in which he used pituitrin to start peristalsis after operation. His case records are too meagre to allow of critical analysis, but the writer expresses himself as well pleased. None of his patients suffered from marked stasis. Konrad (13) reports a case of pronounced

intestinal stasis of three days' duration; he gave three subcutaneous injections of pituitary extract at six hour intervals. The effect was marked, flatus being passed in great amount. Stanley (14) treated three cases of postoperative distention with pituitrin. They were all of short duration, thirty-six, ten, and fourteen hours respectively. In the first two cases, two injections brought a bowel movement. In the third case three injections were successful in bringing flatus, but no bowel movement. The first two cases had been treated with enemata before the pituitrin was given. The third case received only pituitrin.

The foregoing reports comprise all that I have been able to find in medical journals on the subject. It is hard to give a true estimate of the value of the treatment from a perusal of these reports. Most of the cases of intestinal paresis had been treated with purgatives and enemata before the extract was administered, and the beneficial results may have been due to the previous treatment, even though delayed. We all know that purgatives and enemata do relieve intestinal paresis in almost all cases, even when obstinate and accompanied by vomiting and distention. But the quick and fairly constant action lends color to the belief that the extract is a powerful aid. Certainly all of the writers are enthusiastic.

My own experience in the matter comprises ten cases. These are divided into two groups. Group I comprises four cases occurring in the last thirteen months in which routine treatment failed to cause evacuation seventy-two hours after operation. Group II comprises six consecutive cases of laparotomy in which one c. c. of pituitrin was given six, twelve, and eighteen hours after operation and no purgatives. I may say that the routine purgation which I give in cases of laparotomy begins at the end of thirty-six hours, with calomel given hourly, and an enema at forty-eight hours. If the calomel is ineffective or is vomited up, three grains of phenolphthalein are given. The use of enemata is kept up until the bowels move.

The cases of group I are as follows:

CASE I. Mrs. M. W., panhysterectomy. Calomel and phenolphthalein given eighteen hours after operation, but not retained. At the end of seventy-two hours, vomiting still continued and considerable distention, only partially relieved by enemata. No fever. Catheter required. One c. c. pituitrin was then given subcutaneously and repeated in three hours. Some flatus passed ten minutes after first injection. Thirty minutes after second injection, copious fluid stool, with relief of symptoms. Voluntary micturition.

CASE II. Mary P., double salpingo-oophorectomy and appendicectomy. No drainage. In twenty-four hours, tender swelling in the appendix region. Vomiting and slight fever. On third day, condition considerably worse. General tympanites temperature 100° F., vomiting and obstipation. Calomel, magnesium citrate, and enemata ineffectual. One c. c. pituitrin given subcutaneously and repeated in six and twelve hours. Flatus passed repeatedly after first and second injection, and a liquid stool twenty minutes after second injection. Liquid stool after third injection. Relief of vomiting and tympanites.

CASE III. Miss M. L., rupture of the appendix. Appendicectomy. Drainage. No bowel movement obtainable by routine purgation. Proctoclysis used. No enemata. At end of three days, considerable distention. One c. c. pituitrin given subcutaneously. Flatus and small stool in one hour. Pituitrin repeated in three hours, followed by liquid stool and relief of tympanites.

CASE IV. Victor C., appendicitis with peritonitis. Ap-

pendicectomy. Drainage. Great distention before and after operation. Patient vomited everything by mouth. Proctocolitis for forty-eight hours, then one c. c. pituitrin subcutaneously, repeated every six hours for three doses. Much flatus was passed after injection. Last injection brought abundant fecal matter.

Group II comprises cases of laparotomy without infection or drainage; in none was there tympanites, or other intestinal complication. The results from one c. c. pituitrin, given six, twelve, and eighteen hours after operation, are as follows:

CASE V. Supravaginal hysterectomy. Flatus following all injections. No stool.

CASE VI. Hysterectomy, complete: Abundant flatus: No stool.

CASE VII. Salpingectomy; flatus: No stool.

CASE VIII. Appendicectomy (chronic); no result.

CASE IX. Gilliam operation; very slight result.

CASE X. Salpingectomy; flatus: No stool.

CONCLUSION.

1. Pituitary extract is an important aid in post-operative paralytic ileus.

2. It should be tried in all cases where purgatives are not retained by mouth.

3. Its effect on the peristalsis in cases with tympanites seems to be more marked than in cases with no intestinal distention.

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515 FRANKLIN STREET.

Treatment of Fungous Laryngeal Tuberculosis.

C. Canastro, in *Revue hebdomadaire de laryngologie, d'otologie, et de rhinologie* for May 16, 1914, is credited with the following procedure to be employed in the treatment of cases of tuberculous laryngitis presenting polypoid vegetations over portions of the diseased organ, e. g., at the posterior commissure: On alternate days a small amount of quinine hydrochloride is either insufflated over the vegetations or directly applied with the laryngeal mirror. In a few days small necrotic areas appear on the vegetations, the tissues soon after separating off, without pain or hemorrhage. In a case which the author reports in detail the vegetative form of tuberculosis was thus changed in twenty-six days to the ordinary ulcerative and infiltrative form, with considerable improvement in the local appearance of the diseased parts. Dysphagia disappeared entirely and dysphonia was greatly improved, and under further treatment with iodoform in oil and with lactic acid, the condition was almost completely cured. The fungous characteristics are removed without surgical means or strong caustics. The procedure can be carried out even in the case of intractable patients, in those with fever, and even where rather far advanced pulmonary disease co-exists. The tuberculous vegetations seem less resistant to the action of the quinine than the neighboring healthy tissues.

OUTFIT FOR URETHRAL AND BLADDER IRRIGATIONS.

By EDGAR G. BALLENGER, M. D.,

Atlanta,

AND OMAR F. ELDER, M. D.,

Atlanta.

The apparatus shown in the drawing is one we have devised for irrigating the urethra and bladder by the Valentine method. A twelve inch porcelain funnel is connected with the drain pipe by means

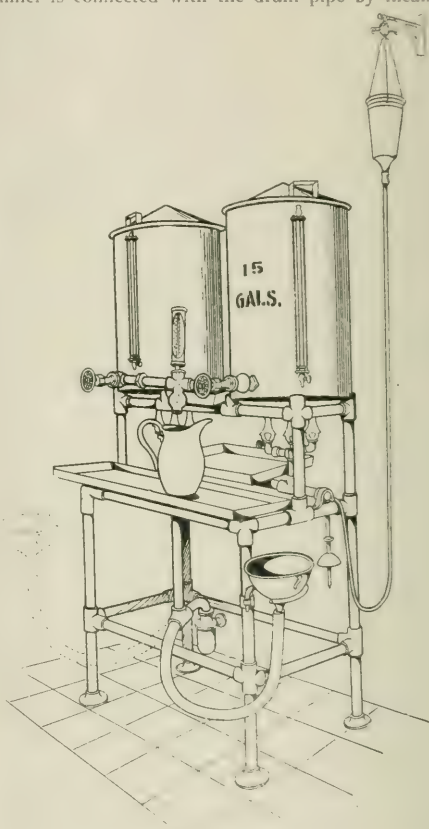


Fig. 1.—BALLENGER AND ELDER'S apparatus for urethral and vesical irrigation.

of a rubber hose. The flexibility of the rubber connection permits patients of varying height to hold the funnel in the necessary position. One tank contains boiling water and the other cold sterile water. The pipes connecting them lead to single mixing pipe which contains a thermometer; this enables one to secure the temperature desired. If one does not wish the tanks and stands, the hose and funnel afford a very convenient method of disposing of the irrigating solutions.

805 HEALEY BUILDING.

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLIII.—What has been your experience with condensed milk as a substitute for the mother's milk? (Closed.)

CLIV.—How do you treat prostatitis? (Answers due not later than January 15, 1915.)

CLV.—What is your experience with high frequency currents in the treatment of tumors of the bladder? (Answers due not later than February 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best paper submitted in answer to Question CLII was awarded to Dr. John E. Lind, of the Government Hospital for the Insane, Washington, D. C., whose article appeared on page 25.

PRIZE QUESTION NO. CLII.

THE TREATMENT OF BEDSORES.

(Concluded from page 28.)

Dr. Louis Neuvelt, of New York, states:

Bedsore is avoidable complications, and the use of the traditional ounce of prevention will save the physician many an hour of penitence for sins of omission or commission. As this is largely a nursing problem, the nurse in charge should have it indelibly impressed upon her mind that the appearance of a bedsore will mean her immediate dismissal.

In all patients whose vitality is low from any injury, subacute or chronic disease, or age, causing a weakened state of nutrition, general or local, avoid pressure on any part of the body, particularly bony prominences such as the heels, trochanters, sacrum, elbows, scapulæ, and nucha. In addition to avoiding pressure, be careful not to irritate or injure the skin with the accumulation of excreta, such foreign bodies as bed pans, pins, etc., or food crumbs, or wrinkling of the sheet and bedclothes. Paralyzed parts should receive particular attention, as in addition to the vasomotor paralysis, the patient loses the sense of pain, and therefore does not complain of the injury, as in injuries and diseases of the spinal cord.

The position of the patient should be changed every three or four hours and his skin kept scrupulously clean, especially in cases with incontinence of urine or feces. The bed and body linen should also be kept clean and all creases and folds smoothed out. The circulation and skin should be kept at their highest efficiency by frequent alcohol and towel rubs, and the parts dusted with stearate of zinc. Air cushions and water or air beds are excellent for the prevention of pressure.

As soon as redness appears, apply spirit of cam-

phor to the part three times daily, or paint it with flexible collodion. Nitrate of silver solution (five per cent.) is helpful when an ulcer begins to form, followed by irrigation with hydrogen peroxide. Surgical cleanliness is now demanded.

When sloughs form, remove all loose tissues and overhanging skin with scissors, irrigate with hydrogen peroxide, and apply an occlusive wet dressing of liquor Burrowii. When all the slough has separated and a healthy granulating surface is left, apply equal parts of balsam of Peru and castor oil to hasten the healing process, and touch it up occasionally with a three per cent. solution of silver nitrate. Ointments of zinc oxide and scarlet red, eight per cent. alternated every two days, promote epidermatization.

The continuous warm full bath at a temperature of 95° to 100° F. for days and even months, gives excellent results, especially in diseases of the spinal cord, and may even be used as a prophylactic.

The patient's lowered vitality demands, in addition, plenty of sound sleep, nourishing food, and general tonic treatment.

Dr. Charles E. Herriot, of St. Louis, remarks:

Prophylaxis is of greatest importance, and with proper care of patient we can prevent a number of cases of bedsores; although in injuries to the spine and in certain lesions in the central nervous system, they are almost certain to appear. In such conditions and in patients who are suffering from wasting and chronic diseases, the following prophylactic measures should be carefully carried out. Keep the skin of all dependent portions of the body clean, dry, and free from pressure. Use pneumatic rings covered with cloth or a pneumatic mattress. In paralysis of one side of the body the patient should lie upon the sound side as much as possible. Patients should be given a sponge bath with tepid soap and water at least once daily, the back and other dependent portions of the body gently massaged, being careful not to handle the patient roughly. After massaging, the vulnerable parts should be rubbed softly with such substances as fifty per cent. grain alcohol to which ten grains of alum to the pint have been added, or with vinegar, camphor, or lemon juice and sodium chloride. After all parts are dry, powder with talcum, boric acid, or zinc stearate. Clothing and bed linen soiled with urine and feces should never be allowed to remain in contact with the body. Sheets should be changed quite often, to prevent decomposition of the perspiration, and also pinned down tightly on each side so as to present a smooth surface. The bed should be firm. Crumbs and other irritating substances should be prevented, and the position of the patient changed as often as necessary. In applying splints, beware of putting undue pressure on any one point or points, and do not put on too tight or uneven bandages. Be careful not to burn with the hot water bottle.

When ulcers occur in spite of all prophylactic measures, strong antiseptic agents, especially carbolic acid, should be avoided. All sloughs are to be clipped away, being careful not to injure sound tissue. Pus sacs are opened and washed with hydrogen peroxide, then with thirty per cent. grain

alcohol, and lastly the ulcers are covered with an ointment of balsam of Peru, to which two drams of iodoform ointment to the ounce has been added. If there is much pain and redness around ulcers, add two drams of ichthyol to an ounce of the ointment. Dusting powders, such as aristol to which a little powdered alum is added, may be used to cover ulcers.

If there is only a slight bacterial infection and the ulcers have a tendency to heal, the following mode of treatment has proved efficacious: Wash ulcers with warm normal salt solution, then apply thirty per cent. grain alcohol, smear edges lightly with scarlet red salve, and apply over ulcers zinc oxide adhesive plaster straps, in opposite directions, leaving spaces between straps in order that secretion may escape. Apply the straps so as to cause tension toward the centre of the ulcer. New straps should be applied every second or third day. A sterile gauze dressing is put over the adhesive straps. To obliterate any obnoxious odor, use a wet dressing of one to 2,000 permanganate of potassium solution.

If stimulation of the ulcers is needed, apply hot and cold compresses alternately, for a few minutes each day, and, if convenient, the heat from a 45 W. electric bulb can be applied; being careful not to burn the tissues. The direct rays of the sun are very good in all bedsores, especially on patients who are tuberculous. In cases of exuberant granulation, the surfaces of the ulcers may be lightly touched with a stick of nitrate of silver and neutralized with a solution of sodium chloride.

The healing of a bedsore is naturally slow, owing to the weakened condition of the tissues. The patient should be given tonics and be built up generally. Dietetic and hygienic measures are of great importance, and we should strive to remove the cause of the bedsore.

Dr. C. R. Laraway, of Lime Springs, Iowa, writes:

The trophic ulcer is the most difficult to treat, for so long as the trophic nerves are not functioning, nothing can be done to cure the ulcer, hence the treatment is clearly that of the nerve lesion, the local treatment being that of any other ulcer.

The first treatment of bedsores is prophylactic and briefly may be stated as follows:

1. In lesions of the central nervous system where trophic disturbance is suspected, patients with paralysis or any other condition that will confine the patient in bed for a long period of time, should be placed on a water or pneumatic bed immediately if at all possible.

2. If there is no contraindication, e. g., fractured femur, all patients should be encouraged to change their position often, and in case of helplessness the attendant should turn them frequently, care being taken not to cause traumatism. This is best done by the use of the draw sheet.

3. The patient should be inspected twice daily, the body kept clean, and at least twice daily the dependent parts should be well rubbed with some hardening solution, preferably:

R Sodii boratis,5i or ij;
Alcoholis,3iij;
Aque, q. s.5iv.
M. To be followed by boric acid powder.

4. The bedclothes should be kept clean and smooth, especially the draw sheet. In case of incontinence of urine or feces, or in excessive sweating, there should be a pad of absorbent cotton placed beneath the patient, changed as often as necessary to keep the parts dry. The part receiving the greatest amount of pressure should be relieved by the use of the invalid air cushion or the soft cotton pad, or by turning the patient. Use a bedpan that will be the easiest on the patient; the slipper shaped type will meet all requirements best.

5. At the first appearance of redness, indicating a possible bedsore, the part should be well cleansed, care being taken not to break the skin, and a thick coating of flexible collodion applied. The collodion must not pucker the skin. This plan is also best where there is constant moisture or in case of recent erosion of the skin before there is necrosis or infection.

Where there already exists a bedsore, treatment is directed according to the severity. In recent cases where the skin is broken and the infection mild, put the part at rest, thoroughly cleanse with some mildly antiseptic solution, preferably bichloride of mercury one to 3,000, and apply unguentum zinci oxidi on sterile gauze. This will soon restore the parts to normal. If, however, the process has gone so far that there is necrosis and infection, the following succeeds admirably. Follow the cleansing and rest with an application of pure balsam of Peru twice daily until all infection is gone, necrotic matter sloughed out, and healthy granulations are started; then mix the balsam of Peru with an equal amount of castor oil and continue this until granulations are sufficient, then apply:

R Unguenti zinci oxidi, }
Olei ricini, }equal parts
M.

Where there is a large area to be healed over, apply scarlet red salve to the edge of the sore, thus stimulating the growth of epithelial tissue. If granulations get too exuberant, they may be taken down by caustic.

In all cases keep up the highest possible standard of bodily nutrition.

Dr. Isidor Betz, of Brooklyn, New York, writes:

Decubitus, like a good many other diseases, is more easily prevented than cured. The methods of prevention consist in keeping the body absolutely clean and the bed perfectly smooth, because folds or wrinkles in the linen will irritate those tissues that are partially devitalized by acute fevers or chronic diseases.

Patients who are confined to bed should be regularly sponged with alcohol in order to harden the skin, and in addition it makes the invalid more comfortable.

Another cause of bedsores is scratching of some part of the body, e. g., by a bed pan. Prevention of this condition is therefore most important by the regular changing of the patient's position, the use of ring pads, air mattresses, perfect cleanliness, and in addition rubbing with alcohol, drying, and the use of a good antiseptic powder.

Bedsore once formed are often extremely hard to cure; and a good nurse that understands these facts

will almost always prevent them. Bedsores are a common form of gangrene, consist of areas of local necrosis, and occur under three conditions: 1. When soft parts are exposed to continual pressure; 2, when there is a low state of vitality; 3, trauma or injury. Frequently all three factors occur at one time.

Bedsores may occur in any part of the body that is exposed to pressure, especially over a bony prominence, e. g., the scapular or trochanteric regions. These occur by pressure, causing an injury to a vessel with the formation of a clot, which increases until it comes to a branch. The thrombus fills quite an area of the vessel, and the part is no longer nourished; necrosis is the result. If infection is added to the necrosis, sloughing occurs, deep ulceration through the skin, muscles, and even bone.

The diagnosis is simple. The first thing noticed is congestion and redness of the skin, which remains after pressure; this means stasis. Later the red color becomes dark purple, which corresponds to the development of the clot, and finally it turns black, with a deep line of demarcation. These cases secrete pus freely; they are of the moist type of gangrene and increase all the time, if not cured, until the patient dies of sepsis.

Prognosis.—When decubitus occurs without a lesion of the spinal cord, the prognosis under proper treatment is good. When bedsores occur as a complication of fracture of the spine, no one is responsible and nothing can be done.

Treatment for all kinds of decubitus is the same; it consists in hardening the skin by the use of alcohol and alum thirty grains to the pint, and improving the circulation by massage. The massage may prevent the formation of a clot. Weak solutions of acetic acid may be used instead of the alcohol. The sheath must be clean, dry, and smooth. In addition, if you suspect decubitus, place the patient upon an air mattress to avoid pressure. After the sores have developed, treat by antiseptic dressings, cut away the sloughed and necrotic areas, stimulate granulations by balsam of Peru and alcohol. The granulations may be cut down with silver nitrate or pure carbolic acid, or, best of all, is zinc chloride, massage twice a day, and protection of other areas.

Therapeutic Notes.

Treatment of Heart Block.—A. D. Hirschfelder, in the *St. Paul Medical Journal* for June, 1914, refers to the treatment of the apparently dead patient during the complete stoppage of the ventricle, lasting as long as a minute or even longer, after the impulse from auricle to ventricle has been suddenly cut off. Hypodermic injections are futile in these circumstances, circulation having ceased. The best method now at one's disposal for meeting this emergency is to place one hand in the left axilla and the other over the ventricle and squeeze the ribs together as vigorously and roughly as possible. In the case of a thin chested woman with heart block thus treated by the author, the ventricle resumed its beating very quickly. In an experiment on a dog, it was found that the heart similarly resumed its activity upon rhythmical slapping.

In cases of partial heart block there occurs fre-

quently a high degree of block due to overaction of the vagus; in these patients normal conditions can often be restored by giving vigorous doses of atropine, digitalis may be harmful. In patients with complete block, on the other hand, one need not hesitate to give large doses of digitalis and continue its use. Thus, the patient above referred to was kept well for a long time by continuous digitalis administration. When in bad condition she was given fifteen minims (one c. c.) of the tincture three times a day; during the intervals when she was in good shape the amount was decreased to five minims (0.3 c. c.), this being given every day and as a permanent dose. Whenever her medicine ran low and she did not use it, she came back to the hospital with fainting spells, which ceased when digitalis was resumed. The drug evidently increased the contractile power of the ventricle and partly kept it from forgetting its habit of contracting. To be sure, digitalis cannot be considered a panacea for these cases, for in some vomiting is produced before a sufficient cardiotonic dose can be attained.

Sensitized Bacilli in the Treatment of Uterine Abscess.—Broughton-Alcock, in the *British Medical Journal* for June 6, 1914, reports the case of a woman of fifty-five years in whom, after a hysterectomy, an abscess had developed from which pus was being continually discharged through the vagina. Seven injections of a culture of organisms made from the pus, which was found to contain *Bacillus proteus*, were given at intervals of three or four days. The organisms had been killed by heating to 60° C. for an hour before administration. After this series of injections, the organisms were found in the vaginal pus in lessened but still considerable numbers, in pure culture. A sensitized vaccine was then prepared from the patient's blood and injected once weekly for four weeks in doses of 400 to 1,000 million. The discharge of pus now completely ceased, in spite of the fact that but little effort had been made to combat the suppurative condition locally with antiseptics. A few additional injections of vaccine were given. Six months later, the discharge had not returned, and the patient's general condition remained good.

Radium Treatment of Prostatic Cancer.—Pasteau, at a meeting of the Société des chirurgiens de Paris (*Revue de thérapeutique médico-chirurgicale*, March 15, 1914), emphasized the utility of radium in cancer of the prostate. The radium may be applied either in the perineal region, through the bladder after suprapubic incision, by the rectum, or through the urethra. The last named route does not necessitate any preliminary surgical procedure. In all cases under his observation radium treatment caused diminution in the size of the growth, disappearance of pressure pain, and an improvement in the general condition, which has been maintained for several years in his patients. When the tumor has been rendered operable by the radium, it should be removed by surgical means. Experience shows that the radium treatment must not be pushed beyond a certain time, as fibrous masses are formed. The author reports a case of prostatic cancer with metastasis in the bladder which ended in recovery under treatment and there has been no relapse in four years.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal
and The Medical News.*A Weekly Review of Medicine.*

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Address all communications to

A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,

66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transpor-
tation through the mail as second class matter.

Cable Address: Medjour, New York.

NEW YORK, SATURDAY, JANUARY 9, 1912.

THE TREATMENT OF TUBERCULOSIS
AND POVERTY.

Until very recently the community has cared for the individual members of the tuberculous family almost regardless of the significance of the family problem and the effect of the disintegrating treatment upon the home. We now have—though often inadequate—preventoriums for suspected cases, sanatoriums for incipient cases, and hospitals for advanced cases, the emphasis being in each instance on the case.

Recently, however, in tuberculosis work, an effort has been made in New York city to treat simultaneously tuberculosis and its greatest predisposing cause, poverty. This new method is based upon the recognition of the social nature of infectious disease and the necessity for social treatment. It is recognized that tuberculosis is a disease of family life and of the home and must be treated with the family as a group. Most important is the recognition of the underlying economic factors and the urgency for their control and removal.

On March 18, 1912, the New York Association for Improving the Condition of the Poor began a three years' experiment in the East River Homes with the purpose of demonstrating a method of home and family treatment for tuberculosis which

should take cognizance also of the economic factors—really the combined treatment of tuberculosis and poverty. This hospital now averages 130 families and 200 individuals, including patients and non-patients. Families are cared for in which one or more members are tuberculous, including the wage earner. The essentials of the treatment are decent housing conditions, an adequate family budget, and proper medical and social supervision. Suitable work is provided for the well members of the family, while for the sick, proper isolation and hygienic care are assured. At the time of discharge the family is assisted in obtaining sanitary living conditions as well as adequate and proper employment for the wage earners. This treatment permits unusual educational control and makes possible the proper treatment of other types of disease occurring during the family's stay in the home hospital.

The equipment of the home hospital includes outdoor sleeping provision in connection with the apartments, a spacious roof for the convalescents, an outdoor school for the children, etc. The food supplied is supervised by a competent dietitian, while the essentials of the cure are constantly kept before the inmates by means of lectures, demonstrations, conferences, diaries, etc.

The results recently announced in the second annual report of this institution indicate that the method is a success. In no instance has a well member of a family manifested symptoms of tuberculosis, either while at the home hospital or since discharge. During the two years the hospital has cared for sixty-two families, including 315 individuals. The results for the adult groups for those cases with positive signs are as follows: Out of a total of fifty cases, twenty-one were apparently cured, sixteen arrested, eight improved, four not improved, and one ended fatally. This record compares favorably with that of the ordinary tuberculosis sanatorium, especially as regards second stage cases. There were thirty-one such cases, thirteen of which were apparently cured. Of the fifteen first stage cases, eight were cured.

Equally effective seems to be this socialized treatment upon the earning power of the families. Proper supervision made it possible to increase the weekly earnings of families discharged last year, from \$6.34 on admission to \$11.71 on discharge. As regards the cost of treatment, including living expenses, medicine, supervision, and administration, the daily cost for a family was \$3.32, for the individual sixty-five cents, for the patient sixty-six cents, for the nonpatient sixty-three cents. This cost for each patient of sixty-six cents compares favorably with the average cost at seventeen New York State tuberculosis institutions giving in-

dividual treatment, the figure for which is \$1.40, or over twice the home hospital figure.

The value of this work has been demonstrated for tenement cities; it is soon to be experimented with in smaller places, necessarily with some modification in equipment and administrative methods. It is a plan which commends itself to official municipal bodies burdened with the responsibility of checking tuberculosis.

"HE GIRDED UP HIS LOINS."

There is nothing new under the sun, not even the use of abdominal belts; these have taken on new and strange forms recently, but the principle is very old. That it is old adds the weight of long usage to other arguments for its value. It is mentioned more than once in the Bible that a character "girded up his loins" when preparing for some feat of physical endurance. The custom is by no means obsolete among the people of the orient, and in many eastern countries, prior to some fatiguing journey, a piece of silk or cotton cloth, twelve to eighteen inches wide and from ten to fifteen feet long, is folded once lengthwise and wound tightly five or six times around the abdomen and back. It is put on by having another person hold one end while the wearer winds himself up in it and carefully fastens the outer end; there is little possibility of its slipping loose. According to occidental interpretation this bandage is supposed to prevent the evaporation of perspiration and chilling of the abdomen with a consequent diarrhea. It undoubtedly secures warmth, though if worn loosely, like a turban, it would serve better to prevent evaporation.

Fatigue is accompanied by muscular relaxation, and there is more reason for loss of tone in the abdominal muscles in this condition than anywhere else. A rabbit held up by the ears dies after a few hours from the fatigue and relaxation of the abdominal vessels, with a resultant fall in blood pressure due, indirectly, to the failure of the abdominal muscles adequately to support the viscera and their bloodvessels. The death of the victim hung, right side up, upon the cross was doubtless due to this cause, and if death may occur from it, great disturbance of the brain may be an early symptom.

The drooping of abdominal organs is believed to be often due to prolonged muscular relaxation, and the so called "neurasthenic" symptoms of fatigue and distress in the head, may be due largely to this muscular relaxation and lack of abdominal support. At any rate a good artificial support, properly worn, does help and relieves the feeling of early fatigue. It also gives comfort to the obese, partly for a similar reason. It is not unlikely therefore that the abdominal binder of the oriental, since it was worn

tightly, and donned before fatiguing effort rather than in the cooling off season of rest afterward, was adopted for support and to put off fatigue, the prevention of undue exhaustion being itself a help against intestinal disease.

Where there is no malformation, abdominal muscles in good tone form the best sort of support, yet in those who are not strong, and who suffer, early from fatigue in the standing posture, it seems reasonable to suppose that the use of an artificial abdominal support to help out the overworked muscles would be of benefit. It is better used, however, after the oriental fashion, with pressure according to the degree of strain brought upon the muscles. It is interesting to note that the corsets most fashionable at the present time, are, when properly applied, of such a nature as to give abdominal support in the proper region. Whether the manufacture of special supporting corsets has caused the fashionable corsetier to become so sensible in his designs, by way of competition, we do not know. It is a good thing, though it is perhaps asking too much of fickle Dame Fashion that she continue the present style.

IS EMETINE INSUFFICIENT IN DYSENTERY?

Dr. Llewellyn Phillips, of Cairo, has a communication in the *British Medical Journal* for December 19, 1914, which possesses particular interest when studied in connection with our comments last week (page 30) on the use of emetine in dysentery. Doctor Phillips has found that relapses are frequent after the exclusive use of emetine, because although the drug is very effective against *Entamoeba histolytica*, it is without action on the nonparasitic *Entamoeba coli*. Thus a patient may recover rapidly from a hepatitis, but the cystic or tetragena form of the organism may then appear in the feces and persist indefinitely, giving rise to relapses have extended over a period of two and a half years. Calomel and thymol have been used with success in the cystic stage of amebiasis, and so has male fern, but Phillips considers the latter too poisonous a drug to be used for any length of time. For a radical cure, therefore, the writer proceeds as follows: He carries on the administration of emetine hypodermically for at least ten days or longer if the state of the patient demands it. This is followed by the oral administration of the drug. Subsequent courses are given at increasing intervals, as is the practice with syphilis or malaria, and in the intervals, courses of calomel combined with thymol; if this is not sufficient, some other intestinal parasiticide should be tried. No man should be considered cured until after several examinations no cysts of *Entamoeba*

histolytica are to be found in the feces. Further, all carriers, even though they may never have had dysenteric or other symptoms, are to be considered as presenting cases of amebiasis, and are to be treated accordingly.

Salvarsan and neosalvarsan have been employed for the treatment of dysentery and excellent results have been obtained; arsenic has been detected in the stools after their use. But the experimenters have unfortunately not recorded if the cysts were destroyed. Phillips always administers at the same time salines to aid in the expulsion of the parasites.

TRACHOMA AND THE PUBLIC HEALTH.

King, in a recent number of *Public Health Reports*, gives the results of an investigation made by him in Porto Rico to determine the prevalence of trachoma among the school children. In an examination of some 4,000 children of the island schools, he found 9.5 per cent. suffering from trachoma, and classed 5.4 per cent. more as "suspicious." He thinks the "general average of 9.5 per cent. a fairly accurate index of the amount of infection in the schools throughout the island," which would mean that of an enrollment of 182,766 pupils during the past school year, 17,435 have trachoma, to say nothing of 10,000 more classed as "suspicious." Truly, a distressing situation!

Trachoma, largely through investigations of the Public Health Service, has of late been found to be widely prevalent in certain parts of the United States, where its presence had been little suspected. Doubtless further investigation will disclose even a wider prevalence of the disease. The affection is yearly becoming a more insistent American public health problem, which, by reason of our lack of definite knowledge, presents many serious difficulties. We have no definite information as to its etiology, and while it is known to be contagious, neither the degree nor the duration of its contagiousness is accurately understood. Even the diagnosis, which depends entirely upon clinical appearances, offers difficulties which frequently can be resolved only by a long period of observation, if ever.

It is even denied by some observers that the disease is a clinical entity at all. Some such view is taken by Williams and her coworkers of the New York city board of health. In a report of a survey of the school children of the east side, supposedly a hotbed of the disease, they express skepticism of the diagnosis, and report the discovery of but few cases of the disease. Under such circumstances very naturally prophylactic measures possess many elements of uncertainty. These uncertainties are hardly given their due value in King's remarks on

prevention, and indeed his statements barely escape the criticism of being both dogmatic and radical. He places perhaps too much importance on the fly and "maybe other insects" as possible carriers of the disease. Quite properly he lays stress on personal hygiene, and the teaching of children habits of cleanliness with avoidance of the common towel, common handkerchief, and similar things in common. Likewise the prompt treatment of all existing cases should obviously receive attention; and no case of sore eyes should be neglected among school children.

King favors "exclusion from the schools or segregation of all trachomatous pupils." The former would surely be a drastic step, possibly a pernicious one. Severe measures of this character, unless they involve the acute infectious diseases, can hardly be defended, except in rare instances, either upon grounds of public policy or of public health.

The trachomatous can be segregated in special schools or rooms, and while this method, under existent conditions, would doubtless be resisted, yet resistance might be overcome by tact, patience, and judgment. Probably it would cause hardship to few and prove beneficial to many, more especially if, as is easily possible, medical care and treatment were also available at the schools. King seems partially to realize the difficulties, for he adds that it might be better to exclude only those "actively contagious." But he fails to explain how we are to determine what cases are thus contagious. He leaves the inference to be drawn that acute cases are actively contagious. This can hardly be accepted since competent students of trachoma have expressed grave doubts as to the existence of acute trachoma, asserting that all such acute cases are probably mixed infections, the "acute" condition being due to a secondary invader.

In brief, the whole subject of trachoma from the public health standpoint presents many pitfalls. We must look to the laboratory for fuller knowledge before we can hope to outline a prophylaxis which is really satisfactory, though certainly this need not deter us now from making all reasonable attempts to meet a very serious situation.

IMPROVING THE TINCTURE OF IODINE.

Douglas H. Stewart, in the *American Practitioner* for December, 1914, states that in a conversation with Roberts Bartholow away back in 1879, he suggested the addition of calomel, one part in 3,000, to the tincture of iodine, which Bartholow had already pronounced prophylactic of septic infection. The distinguished teacher replied, "Either you have struck a gold mine or a mare's nest. At any rate, no septic process could possibly go on in the presence of such an application. Eliminate irritation

and its promises are very large indeed." Bartholow taught that calomel with iodine formed nascent red mercury iodide. Stewart advises, therefore, that calomel be always added to tincture of iodine, and states that when diluted, one dram to one ounce, with sterile water or normal salt solution, an ideal wound dressing is formed, while the mixture is unapproachable when used internally in sore throat, bronchitis, tuberculosis, etc. For internal use, the dose begins with one drop in a tablespoonful of sherry before each meal, and increases drop by drop—to tolerance, we suppose.

A FALLING OFF IN BRITISH MEDICAL STUDENTS.

Donald MacAlister, president of the General Medical Council, publishes in the *Lancet* for December 26, 1914, the returns from deans, registrars, and other medical school officials, showing the number of students enrolled this session compared with the number in attendance last year. The decrease in October, 1914, was as to first year students fifty-six fewer, second year 237 fewer, third year 237 fewer, fourth year 211 fewer, fifth year and higher, 300 fewer. The aggregate number is therefore diminished by 1,000. Unless many senior students return to their studies within the next few months the result will be that the number of young qualified practitioners added yearly to the ranks of the profession will during the next few years be from 200 to 300 less than before. This is equivalent to a diminution of about twenty-five per cent. of the average number annually added on qualification. The number annually removed by death or otherwise has for some years past been about 800. Owing to the additional losses among senior practitioners due, directly or indirectly, to the war, the prospective diminution of the reserve supply, Mr. MacAlister believes, calls for serious consideration.

News Items.

Changes of Address.—Dr. Thomas W. Edgar, to the Alfreda Apartments, 3875 Broadway, corner of 162d Street, New York; his downtown office is at 225 West Sixty-ninth Street.

College of Physicians of Philadelphia.—At the December meeting of the Section in Otology and Laryngology of the College of Physicians of Philadelphia, Dr. George Morley Marshall was reelected chairman and Dr. Benjamin D. Paris, clerk, to serve for the year 1915.

Relief Fund for Belgian Physicians.—The treasurer of the Committee of American Physicians for the Relief of the Belgian Profession reports for the week ending January 2, 1915, contributions amounting to \$257.50; contributions previously reported amount to \$405, making a total of \$662.50.

More Philadelphia Surgeons to go to the Front.—Announcement is made by Dr. J. William White, a member of the board of trustees of the University of Pennsylvania, that the university is preparing to send abroad eight or ten surgeons to take charge of the Philadelphia ward in the American Military Hospital in Paris.

Philadelphia County Medical Society.—At the December meeting of the Southeast Branch of this society the following officers were elected: Vice-president of the County Medical Society, Dr. Benjamin H. Mann; chairman, Dr. Aaron Brav; clerk, Dr. Morris Ginsburg; chairman of program committee, Dr. Joseph S. Cohen; chairman of membership committee, Dr. Bernard L. Kahn.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, January 11th, Samaritan Hospital Medical Society; Tuesday, January 12th, Pediatric Society; Wednesday, January 13th, County Medical Society; Thursday, January 14th, Polyclinic Ophthalmic Society, Pathological Society; Friday, January 15th, Southeast Branch of the County Medical Society, Jefferson Hospital Clinical Society.

New York Neurological Society.—At the annual meeting of this society held on January 5th, the following officers were elected: President, Dr. William M. Leszynsky; first vice-president, Dr. E. G. Zabriskie; second vice-president, Dr. F. Kennedy; corresponding secretary, Dr. J. R. Hunt; recording secretary and treasurer, Dr. C. E. Atwood; councillors, Dr. L. P. Clark, Dr. Frederick Tilney, Dr. Alfred S. Taylor, Dr. I. Abrahamson, and Dr. S. E. Jelliffe.

Smallpox in Kansas.—The State Board of Health of Kansas reported to the United States Public Health Service, at Washington, D. C., that during the three weeks ending December 19, 1914, epidemics of smallpox had been reported throughout the State as follows: Harper County, 32 cases, with one death; Pratt County, 69 cases. In addition to these 15 cases had been reported in Sedgwick County, 15 in Finney County, and 26 scattered among fifteen other counties.

Cholera in the Philippine Islands.—Assistant Surgeon Duffy, of the United States Public Health Service, acting chief quarantine officer for the Philippine Islands, reported on November 5th that the cholera epidemic in Manila was about over. During the preceding two weeks only a few sporadic cases had been reported and the examination of contacts and others exhibited practically no carriers. The results of the campaign inaugurated by the Public Health Service to rid vessels engaged in river and bay traffic of cholera carriers showed that 1,814 examinations were made and nineteen cholera carriers were found.

Public Lectures of the Health Department.—The Bureau of Public Health Education of the Department of Health of the City of New York invites the public to attend the following lectures which will be given during the coming week: Tuesday, January 19th, in the Municipal Building, Dr. Clifford Martin, What the Department Does to Stamp Out and Control Tuberculosis; Wednesday, January 20th, in the Assembly Hall of Hunter College, Miss Elizabeth Gregg, Use of Social Service in Health Work; Thursday, January 21st, in Assembly Hall, Hunter College, Dr. Charles F. Bolduan, director of the Bureau of Public Health Education, Sanitary Aspects of the Water Supply; Friday, January 22d, in the Municipal Building, Miss Laura Cauble, Economic Aspects of Food Inspection and Condemnation.

The New Year in New York Begins with a Low Death Rate.—The new year has opened with a slightly lower death rate than that of the first week of 1914, the rate for the two weeks under comparison being 14.30 and 14.43 respectively. The most noteworthy feature of mortality was the considerable increase in the number of deaths charged to pneumonia, there having been 277 deaths reported during the week against 225 during the first week of 1914. The total number of the deaths from infectious and contagious diseases, measles, scarlet fever, diphtheria and croup, whooping cough, typhoid fever, cerebrospinal meningitis, and diarrheal diseases was considerably below that of last year.

Phi Delta Epsilon.—This medical fraternity held its eleventh annual convention and banquet at the Yale Club, New York, on Monday, December 28th. Dr. William S. Gotthel acted as toastmaster, and among those who spoke were Dr. Hideo Noguchi, Dr. W. J. Meyer, Dr. William M. Leszynsky, Dr. Ellsworth E. Smith, Dr. Dexter D. Ashley, and Dr. A. J. Bellar. Officers were elected as follows: Grand consul, Dr. Bernard B. M. Aarons, of Philadelphia; first vice-grand consul, Dr. August C. Schwenk, of New York; second vice-grand consul, Dr. Morris A. Weinstein, of Philadelphia; third vice-grand consul, Dr. Henry L. Sinsky, of Baltimore; grand chancellor, Dr. Aaron Brown, of New York; grand scribe, Dr. B. Edgar Spiegel, of New York; grand historian, Dr. Samuel Gleinberg, of New York; trustees, Dr. Murray B. Gordon, of Brooklyn; editor of the *News*, Dr. A. Brown, of New York; associate editors, Dr. Murray B. Gordon, of Brooklyn, and Dr. A. S. Blumgarten, of New York.

Plague Infection in New Orleans.—A detailed list of the thirty cases of human plague recognized and reported in New York from the beginning of the outbreak in June to the end of December, has been published by the United States Public Health Service, and a similar statement of plague infected rats caught and reported up to December 12th. The last cases of human plague occurred on September 30th.

West Philadelphia Medical Association.—The following officers were elected at the annual meeting of the association held in December: Dr. John Welsh Croskey, president; Dr. A. L. Bishop, vice-president; Dr. Henry G. Munson, corresponding secretary; Dr. W. W. Miller, financial secretary; Dr. E. L. Graf, treasurer; additional members of the board of directors, Dr. William H. Walsh, Dr. Charles E. Price, Dr. T. P. H. Twaddell, and Dr. A. E. Bogart.

North Dakota Health Officers Organize.—The Public Health Conference, a permanent organization of health officers and others interested in public health work, was organized on December 18th at a meeting held in response to a call issued by Dr. C. J. McGurran, secretary of the State Board of Health. Dr. H. H. Healy, of Grand Forks, was elected president, and Dr. Alfred Dean, of Grand Forks, secretary. A model health law was discussed and copies will be sent to every health officer in the State. A committee to be appointed by Doctor Healy will draft a measure to be submitted to the State legislature. Among the provisions advocated is a full time health officer for the State.

Civil Service Examination for Superintendent of County Tuberculosis Hospital.—Under the New York State Civil Service Rules a competitive examination will be held January 23, 1915, for superintendent of Fulton County Tuberculosis Hospital, salary \$1,500 and maintenance. The examination is open to married and unmarried men but the hospital has accommodations sufficient for not more than superintendent, wife, and one child. Preference will also be given to residents of New York State. This examination is open only to men physicians, who are licensed to practice medicine in New York State, and with at least three years' experience in the practice of medicine. Persons desiring to enter this examination must file applications on blank form E-10 in the office of the State Civil Service Commission on or before January 19, 1915.

Personal.—Dr. S. R. Klein, pathologist to the State Hospital for the Insane at Norwalk, Conn., has been appointed regular United States staff correspondent of the Vienna *Allgemeine medizinische Zeitung* by Dr. E. Kraus, editor.

Dr. William Van Pelt Garretson, of New York, has been appointed clinical professor of neurology and psychiatry at the New York Polyclinic Medical School and Hospital.

Dr. Louis Schapiro, of Milwaukee, has received an appointment on the International Health Commission of the Rockefeller Foundation. After traveling through the Southern States and initiating work in the eradication of intestinal parasites in Costa Rica, Doctor Schapiro will probably take charge of the work in northern Egypt.

Dr. Victor C. Vaughan, dean of the medical faculty and professor of hygiene and physiological chemistry at the University of Michigan, Ann Arbor, and president of the American Medical Association, addressed the members of the St. Louis Medical Society on the evening of December 12th, his subject being Professional Ideals.

Dr. George Herbert Evans, of San Francisco, has been appointed assistant clinical professor of medicine in the University of California Medical School.

Dr. Simon Flexner, of New York; Dr. William H. Welch, of Baltimore, and Dr. T. Halstead, of Baltimore, were guests of Dr. E. G. Abbott, of Portland, Me., during Christmas week.

Dr. Howard C. Beal, of Worcester, Mass., a member of the American Red Cross Society, has been made chief surgeon of the American Women's War Hospital in London.

Dr. James J. Walsh, of New York, addressed the Associated Physicians of Montclair, N. J., on the evening of December 28th on Cured Cases and Their Significance in the History of Medicine.

Dr. William S. Cain has been appointed health officer of Elmira, N. Y., succeeding Dr. Floyd B. Parke, deceased.

The Health of New York City during 1914.—The year 1914 marked the lowest death rate ever attained in New York, and definitely placed this city among the most healthful of the large cities of the world. The number of deaths reported during the year was 74,803, a rate of 13.40 per 1,000 of the population, against 73,302 deaths and a rate of 13.76 for the year 1913. The most noteworthy feature of the decreased mortality was the splendid record in infant mortality, only 95 infants dying out of every 1,000 born. This is the lowest infant death rate attained in New York, the rate in 1913 having been 102 per 1,000 births.

The following causes of death showed a considerable decrease in mortality: Typhoid fever, measles, scarlet fever, all forms of acute respiratory diseases, and diarrheal diseases under five years of age. There were 10,286 deaths reported from all forms of tuberculosis against 10,031 deaths in 1913, an increase in the absolute figures of 255 deaths, the rate per 1,000 of the population being 1.84 during 1914 against 1.87 in 1913, a slight decrease. There were 16,804 deaths reported from the combined causes of organic heart, kidney, and brain diseases, against 16,194 in 1913, an increase of 610; the number of deaths reported from cancer was 4,463, an increase of 240 over the figure of last year; 4,516 infants died from congenital causes such as malformations, marasmus, prematurity, etc., and 4,982 (almost 5,000) people met with violent deaths. The rate from purely accidental deaths decreased somewhat, while that from suicides increased considerably, there having been 915 deaths reported from this cause; 13,312 children died before the completion of the first year of life; 19,518 children died under the age of five years. There were 41,235 deaths reported of males against 33,568 deaths of females; 30,825 deaths were reported from institutions; 29,561 from tenements; 11,819 from dwellings; 746 persons died in hotels, and 1,852 died in rivers, streets, etc.

The year 1914 also witnessed the greatest number of births that ever occurred in the history of New York, there having been 149,647 children born during last year, an increase of 5,513 births over 1913.

The number of marriages reported during the year was 53,052 against 51,268 in 1913, an increase of 1,784.

To Regulate the Sale of Proprietary and Patent Medicines.—At a meeting of the Board of Health of the City of New York, held on December 31, 1914, section 117 of Article 8 of the Sanitary Code was adopted to read as follows:

Patent Medicines. No proprietary or patent medicine manufactured, prepared, or intended for internal human use, shall be sold, offered for sale, sold or given away, in the City of New York, until the following requirements shall, in each instance, have been met:

The names of the ingredients of every such medicine shall be registered in the department of health in such manner as the regulations of the board of health may prescribe.

The expression "proprietary or patent medicine," for the purposes of this section, shall be taken to mean and include every medicine or medicinal compound, manufactured, prepared, or intended, for internal human use, the name, composition, or definition of which is not to be found in the United States Pharmacopoeia or National Formulary, or which does not bear the name of each ingredient conspicuously, clearly, and legibly set forth, in English, on the outside of each bottle, box, or package in which the said medicine or medicinal compound is held, offered for sale, sold, or given away.

The provisions of this section shall not, however, apply to any medicine or medicinal compound, sold or given away under the written prescription of a duly licensed physician, provided such medicine or medicinal compound be sold or given away to or for the use of the person for whom it shall have been prescribed, and provided, also, that the said prescription shall have been filed at the establishment or place where such medicine or medicinal compound is sold or given away, in chronological order according to the date of the receipt of such prescription at such establishment or place.

Every such prescription shall remain so filed for a period of five years.

The names of the ingredients of proprietary and patent medicines, registered in accordance with the terms of this section, and all information relating thereto or connected therewith, shall be regarded as confidential, and shall not be open to inspection by the public or any person other than the official custodian of such records in the department of health, such persons as may be authorized by law to inspect such records, and those duly authorized to prosecute or enforce the Federal Statutes, the Laws of the State of New York, both criminal and civil, and the Ordinances of the City of New York, but only for the purpose of such prosecution or enforcement.

This section shall take effect December 31, 1915.

A public hearing on the measure was held in the Council Chamber at the City Hall on Thursday, January 7th, when an opportunity was given to numerous representatives of the retail drug trade manufacturers, the wholesale dealers, and the retail druggists to appear in opposition to the measure.

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

October 12, 1914.

Treatment of Dysentery, by F. Goepfert.—Among the most important factors is diet; in the beginning there should be a period of fasting. Later the food should be restricted in amount and limited to that which is digestible without leaving any material residue. Hunger is to be avoided, for it often tends to increase the severity of the case. Secondary gastrointestinal disorders often arise after the acute stage is passed unless the greatest care is exercised in the feeding of the patient. Carbohydrate gruels should alone be given in the first few days, to which may be added small amounts of beef tea, beef extract, or plain tea. After this it is essential to feed the patient and to provide the needed quantities of mineral salts and albumin together with the carbohydrate basis of the diet. This may be accomplished by the use of whey, buttermilk, thick cream soups, maltose, with the further addition of meat extracts. Costly proprietary meat preparations have no special value. The individual feedings should be small and the intervals between them fairly short. Other treatment of the disease which has proved of value comprises the administration of blood charcoal, bolus alba, and other adsorbents, both by mouth and in the form of a high enema. Astringents are valueless in the acute stages, later they may prove helpful, when the decoction of rhatany, or some other tannin preparation may be given. The most important drug of all, however, is castor oil, which finds its use in the initial stages and when the patient has eaten anything which has not been well digested. Opium is also of some limited value, but its use should be restricted more than is customary.

Bony Material in the Sputum, by Kretschmer.—A search of the literature has revealed but a single instance in which there was true bone found in the sputum. In that instance the bone came from caries of the ossified tracheal rings. In the case here reported by Kretschmer fragments of true bone were thrown off in the sputum repeatedly for several months, at times leading to pulmonary hemorrhage from mechanical rupture of small pulmonary vessels. The bone evidently came from a carious process involving the bodies of the eleventh and twelfth dorsal vertebrae. The osseous lesion led to the formation of an abscess which ruptured into the base of the lung and discharged through the trachea.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

October 13, 1914.

Theory of Anaphylactic Poisoning, by E. von Behring.—The observations and theories of others are discussed and set aside as probably incorrect as explanations of the mechanism of the production of this phenomenon in guineapigs. From his own experiments, and those made by his pupils, von Behring is led to the conclusion that acute anaphylaxis is to be explained on a physical basis. He cites evidence that in death by anaphylaxis the blood platelets are found in the brain in clumps,

firmly agglutinated. It is thought probable either that the blood serum is altered by the union of antigen and antibody in a way incompatible with the integrity of the blood platelets, or that the platelets themselves in sensitized guineapigs may be altered directly by the action of the antigen. Incidental to the studies on this question, it was found possible to isolate the blood coagulating enzyme—cytozyme—from the platelets in such a state of activity that one gram of the dried substance would coagulate not less than forty million c. c. of a mixture of fibrinogen, serozyme, and calcium. This is more than 2,000 times the activity of the Kocher-Fonio preparation known as coagulen.

Etiology and Clinical Diagnosis of Actinomycosis, by E. G. Dresel.—Citing the divergence in bacteriological characteristics of the several strains of organisms reputed to cause actinomycosis, the author proceeds to give the results of his own observations which tend to clear up the question of the specific organism. He found that the true cause was an anaerobic trichomycete, but that in many cases there was a mixed infection with a form of streptothrix which belongs to the same general class and which has often been confounded with the former. Certain human infections are encountered which are clinically like actinomycosis, but which are due to purely aerobic streptothrices. The only possible means of accurate diagnosis of true actinomycosis lies in bacteriological cultural examination of the pus from the lesion.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

December 1, 1914.

Puerperal Infection with Fraenkel's Gas Bacillus, by W. Schneller.—The best method of demonstrating the presence of anaerobic bacilli in the blood is that of Lindemann. Where abortion had taken place as a result of infection with this bacillus the lungs of the fetus did not show that death resulted from aspiration of infected amniotic fluid. The bacilli gained entrance to the fetus through the blood channels of the placenta. They were found in the intervillous spaces and also in the villi. The prognosis of these cases is doubtful, although most authors consider it favorable. In virulence this infection ranks third, streptococcal infections being first and staphylococcal infection, second. Hemoglobinuria is a symptom of grave omen. The odor of the placenta may help in making the diagnosis. An important symptom is the peculiar discoloration of the skin. The treatment consists in emptying the uterus. Anaerobic bacilli are prone to cause thrombosis; tying off the veins may help. Little can be expected of intravenous injections of serum.

Technic of the Albee Operation, by T. Koeliker.—The author has performed the Albee operation without the aid of special instruments. The first step of the operation is carried out with the patient on his side, a roll having previously been placed under the patient's waist. After the supraspinous ligament has been cut, a longitudinal furrow is made in the spinous processes that are to be divided by means of a small straight chisel. The interspinous ligament is then divided. A seven cm. wide chisel is inserted into this furrow and the spinous processes split to their bases. Iodoform

gauze strip is inserted into the furrow and the skin sewed provisionally. The piece of bone is then removed from the tibia. To do this the patient is placed on his back and the bone is removed from the outer side of the tibia together with its periosteum, which is not stripped. In separating this wedge of bone anteriorly the chisel should point outward. The bone is implanted into the furrow of the spinous processes.

Collapse Following Naval Engagements, by Ehret.—In collapse the disturbances of the circulation occur rapidly and the patient either dies as a result or the effects of the temporary disturbance of circulation are so slight as to leave no organic changes. Collapse is due to disturbance of the action of the heart, the bloodvessels, or of the kidneys. The last is seldom seen in the cases under consideration. Collapse due to cardiac disturbance occurs when too great a demand is made on the reserve power of the heart. The reserve power is not the same in every individual and is based to a large extent on the quality of the cardiac muscle. Traumatic rupture of the valves or tendons of the heart caused by sudden strain on the heart also produces collapse. Myocardial hemorrhages, blunt violence applied to the cardiac area, and poisoning by alcohol or nicotine are also factors in the production of collapse. The arteries, by virtue of their elasticity, can regulate the action of the heart. When the elasticity is impaired or when the vasomotor action is lost, collapse may occur. Prophylactically, morphine may be administered, especially if pain is severe. The patient should lie flat. The diet should be fluid or partly solid. The treatment of the actual collapse consist in administration of cardiac stimulants either hypodermically or intravenously. Caffeine and camphor are best given at the outset. Later strophanthus and digitalis may be given, but the heart muscle must be in good condition. Adrenaline in ten to twenty minim doses mixed with physiological salt solution is of great benefit in collapse following pneumonia.

WIENER KLINISCHE WOCHENSCHRIFT.

December 3, 1914

Prognosis in Rigidity of the Spinal Column, by Berthold Beer.—Rigidity of the spinal column (Strümpell's, Marie's, Bechterew's, or Senator's disease) is for the most part curable. In the author's experience the treatment lasted from two to fourteen years. Some of the x ray pictures of these cases indicated that true ankylosis existed, although the effect of subsequent treatment would indicate that this was not the case. These cases were not influenced by anti-rheumatic mixtures, salves, heat applied in the form of vapor, baths, diathermia, or massage with mechanical apparatus and orthopedic appliances. The treatment is based on the elasticity of the connective tissue and on the fact that in atrophic conditions there is considerable reserve power still left in the tissues. Many other chronic conditions such as chronic rheumatism, scleroderma, atrophy of the skin, contractions, and nerve conditions which show improvement under prolonged treatment, have been up to now regarded as incurable, and medical books and periodicals have always regarded them as such. The relative num-

ber of incurable cases is probably very small and if hospitals for chronic cases were established these patients could be satisfactorily treated.

Gunshot Fractures of the Thigh, by Julius Hass.—The principle of the treatment consists in an endeavor to obtain the best possible apposition of the fragments by making the greatest amount of extension. This should be carried out under light ether anesthesia and should be accomplished in one stage. Plaster of Paris dressing is then applied to hold the fragments in place. When there is considerable shortening due to retraction of the muscles, extension can be obtained only by mechanical appliances. Lorenz's redresser is used for this purpose. In using this apparatus, a plaster of Paris bandage is first applied from the toes to the knee. Light ether anesthesia is then induced and the patient is placed on the apparatus. Extension is also made of the sound leg to guard against obtaining abduction which would result as a consequence of the twisting of the pelvis if extension was applied only to the injured side. Lateral dislocation is corrected by lateral pull. In fractures of the upper third of the femur in which the central fragment cannot be influenced because of its small size, the thigh is placed in the position which has been designated as inversion by Lorenz. This is brought about by abduction, internal rotation, and hyperextension. When correction has been made, which is controlled by measurements, and, eventually, by the x ray, the plaster of Paris bandage is completed. Windows are cut in the plaster of Paris over the wounds, and the intervening space, which is somewhat weaker than the remainder of the bandage, is reinforced by plaster of Paris, veneering, or wire screen. During the first twenty-four hours following the application of the bandage, there may be pains which are due to the stretching of the muscles. At the end of fourteen days the patients are allowed to stand; at the end of four weeks, the lower part of the dressing is removed, and at the end of the seventh week the entire dressing is removed. Infected patients are allowed to get up only when the symptoms of infection have disappeared.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

November 24, 1914.

Treatment of Wounds of the Eye, by A. Terson.—In wounds apparently not infected, but where the tissues are soiled with extraneous matter, washing of the skin of the lids with soap or sodium bicarbonate solution is advised. If the tissues are clean, tincture of iodine, diluted with four or five parts of alcohol, should be applied with cotton on an applicator. Before using the iodine a one in fifteen solution of cocaine should always be dropped in the eye and a layer of well moistened cotton inserted under the lids to take up any excess of the tincture. Antitetanic serum should be given in the majority of cases. The eyeball itself should be cleansed by irrigation, with a cotton pledget, or if it is much soiled, with the author's duckbill infrapalpebral cannula. Only saline solution or a solution of sodium borate, salicylate, or bicarbonate should be used for irrigation. Foreign bodies, where numerous, should be removed at several sittings. While x ray examination is considered by Terson indispensable in all

foreign body cases, large intraorbital bodies should be sought and removed at once, when the wound is still open. Kocher's hemostatic forceps are recommended for the removal of such bodies. In suturing lids the margin of which has been severed, all tension must be avoided, even if section of other tissues is necessary to prevent it. The wounded cornea need not generally be sutured. Pilocarpine in one per cent. solution, iodoform ointment, and a dry binocular dressing are recommended. Suture of a cut sclera is seldom advisable, but the opening should be covered with conjunctiva; to facilitate mobilization of the latter, Terson passes the point of a hypodermic needle under the conjunctiva at some distance from the wound—after air has been drawn into the syringe barrel from above an alcohol flame—and injects air, thus automatically dissecting off the conjunctival layer. Fine reindeer tendon is advised as suture material. In infected wounds, instillation of enesol twice daily is recommended.

PRESSE MÉDICALE.

November 11, 1914.

Extension Apparatus for Compound Fracture of the Humerus, by Mossé and Lamare.—A detailed, illustrated description is given of an apparatus devised by Delbet and recently found of great utility by the authors. It includes a curved metallic piece to rest in the axilla against the lower borders of the pectoralis major and latissimus dorsi muscles; to the anterior extremity of this is rigidly attached a straight rod extending down the arm and sliding in a tube, to the lower end of which is attached by a universal joint a broad, curved metallic plate intended to rest on the forearm near the elbow. The forearm is held at a right angle to the arm by a sling. A spiral spring is so disposed around the tube as to exert upward pressure upon the straight rod enclosed in the tube, the forearm being thus pushed downward from the shoulder, with resulting extension of the muscles of the arm and fragments of the humerus. The portions of the apparatus which exert pressure on soft tissues are padded. The curved metallic piece in the axilla is held there by a strap passing above the shoulder and is also fastened to the sling as it curves round the patient's neck. The tension of the spring is adjusted from day to day as the muscles of the arm yield to the extension. In a short time the fragments are found in good position. The patient himself is a good judge of the amount of extension appropriate at any given time. The apparatus is available for fractures at any point of the humerus from the surgical neck down, and the efficient immobilization of the fragments, promptly relieving pain, permits slight voluntary movements of the forearm and at the shoulder to be made. Discharge from the depths of the wound soon stops. Comparison of the method with former procedures clearly showed its superiority.

Treatment of Frostbite, by G. P. Trifonoff.—Eighty-nine cases of frostbite, eighty-five of which showed more or less extensive gangrene of tissues, were treated by the author in the Balkan wars. He advises daily prolonged immersion of the affected parts in solutions of hydrogen dioxide or potassium

permanganate at a temperature of 38 to 40° C. Dead tissues should always be removed, without causing the underlying parts to bleed, and one in fifteen tincture of iodine then used. Later, ointments containing silver nitrate, two per cent.; balsam of Peru, twenty to thirty per cent.; red oxide of mercury, four to five per cent. in olive oil; or chloroform and bismuth subnitrate in petrolatum, should be applied.

November 10, 1914.

Phenol Treatment of Tetanus, by Talamon and Pommay.—Six cases are reported in which phenol treatment was administered, with recovery in five. The fatal case was one of especially violent tetanus, with short incubation period. The method applied was as follows: As soon as the diagnosis was made, injections were begun, twenty c. c. of a solution containing one per cent. of phenol being introduced in the subcutaneous tissues every four hours. The solution used was made up thus: Phenol in crystals, ten grams; pure glycerin (30 degrees, Beaumé scale), fifty grams; distilled water, enough to make 1,000 grams. The solution was sterilized before use. Before giving the injections the skin was cleansed with alcohol or ether. The injections were administered on the outer aspect of the thighs or under the abdominal skin. But slight pain was caused, and no reddening nor inflammation of the tissues followed when care was taken to vary the site of injection. In spite of the large amount of phenol given—1.2 gram per diem—no toxic effects were ever noted except a dark coloration of the urine. As a rule the injections were continued for two to three weeks, after which one half the original dose was further given for eight or ten days, until muscular contracture had entirely disappeared. Chloral hydrate in daily doses of six to eight grams was also given in each of the cases, and in one instance massive amounts of antitoxin in addition. The authors; from their experience with phenol, consider its use the most efficient measure now available for the treatment of established tetanus.

RIFORMA MEDICA.

December 5, 1914.

Direct Action of Nicotine and Tobacco on the Motility and Tone of the Intestine, by E. Tedeschi.—The direct action is in proportion to the dose. Spasm is marked and prolonged when large doses are given. The amplitude of the excursion of the intestinal movement is diminished, rhythm and uniformity of movement are disturbed. The action of infusions of tobacco differs from that of the alkaloid nicotine; in effect the intestinal spasm is more intense and more prolonged by large doses; while with small doses there is stimulation to uniform, frequent rhythmic contraction. This leads to the supposition that other components of tobacco beside nicotine have an influence on the intestine.

Osteomyelitis and the Proteus Bacillus, by G. Marsiglia.—Experiments on rabbits were employed to determine the possibility of osteomyelitis being caused by the proteus group of bacteria which play such an important part in the processes of putrefaction. The results show that after injection of these bacilli into the circulation, a subcutaneous

fracture of a bone will cause a localization of the bacteria at the site of fracture. This produces a focus of necrosis in the bone and surrounding soft tissues. Furthermore, direct inoculation of a culture of these organisms into the bone medulla causes inflammatory lesions with septicemia or gaseous gangrene of the region, followed by the death of the animal. However, in no case was it possible to produce a condition which either clinically or pathologically resembled true osteomyelitis.

Hysteria, by A. Salmon.—The connection of hysteria with organic disease is noted. For instance, hypersensibility of the nervous system may change a mild laryngitis into a stubborn hysterical aphonia. The author describes a new phenomenon first brought out by him at the neurological congress in Florence during the present year. After a prolonged voluntary muscular contraction, the same movement is, on slight suggestion, repeated several times automatically and involuntarily. This occurs even in perfectly normal subjects, and shows the importance of kinesthetic images on the mechanism of automatic acts. Many hysterical phenomena are to be laid to the vasomotor mechanism, as hemiplegic contractions, which are often relieved by the inhalation of amyl nitrite, after resisting all treatment, psychic or otherwise.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

December 7, 1911.

Clinical Notes on Obstetric Eclampsia, by P. Zuloaga and J. Garrote.—The prophylactic treatment of eclampsia, advocated by Tarnier and his followers, is far from being efficacious. They describe cases where the most rigorous diet, instituted immediately on the appearance of albuminuria, was accompanied by a rapid advance in the percentage of albumin. In one case this rose from 0.5 per cent. to 2.1 per cent. in three weeks. They are of the firm opinion that the only satisfactory treatment, either prophylactic or curative, is the termination of the pregnancy. However, they feel that milk diet, diuretics, cupping, and blood letting, should first be tried in all cases of albuminuria, or where there is high arterial tension without albuminuria. Their explanation of eclampsia is that it is the result of an intoxication by poisonous products of mother and child, combined with bacterial toxins. After labor has begun, or been induced, great stress is laid on the use of chloroform so as to produce a continuous state of somnolence, deepened to surgical anesthesia on the appearance of the slightest convulsive movement. As to the fetal prognosis, they think that, with great care, a living child may be delivered, and that the better the ante partum treatment and the shorter the labor the better are the child's chances. Blood letting is defended not only because it removes from the circulation a certain quantity of accumulated toxins, but also because it lowers arterial pressure, and encourages the absorption of edema. Blindness, which in these cases is due to papillary edema, is frequently cured by bleeding.

Friedmann Treatment of Tuberculosis, by Garcia Trivino.—The author cites cases in his own experience, cases in which neither the pulmonary symptoms nor the quantity of bacilli in the sputum

were improved by injections of the Friedmann preparation. He is of the opinion that it is destined to disappear entirely from medical practice.

BRITISH MEDICAL JOURNAL

December 16, 1911.

Permanganate in Sloughing and Tetanus Infected Wounds, by Leonard Rogers.—Several years' experience with the use of washes and local wet dressings of potassium permanganate solutions in the treatment of sloughing wounds, comprising tropical ulcers, an obstinate form of tropical paronychia, bedsores, cancrum oris, and liver abscess with secondary infection, has convinced Rogers that this agent has especial value in such conditions. In addition, experimental work on animals has shown that the simultaneous injection of permanganate and tetanus organisms, or its local use shortly after artificial tetanus inoculation, prevents infection in the majority of cases. The rationale of the use of permanganate under all of these circumstances seems not to depend upon its rather feeble bactericidal properties, but to rest upon its power of destroying the associated bacterial toxins through oxidation. It is conceived that these toxins have a power antagonistic to phagocytosis, and their removal by permanganate permits normal phagocytic processes successfully to cope with the invading bacteria. It has been proved that tetanus infection does not follow the injection of the organisms if they have previously been washed free from toxin, and it seems that the oxidizing action of potassium permanganate serves the same purpose. In treatment the permanganate should be used in solutions not weaker than one in 500, and solutions of one or two per cent. strength are more effective, being at the same time not irritating. The permanganate has the peculiar value of providing its own means for control in that it is decolorized so long as oxidizable substances are still present in the wound. It should therefore be applied repeatedly until its color is no longer altered. It seems probable that the common gas forming organisms will also yield promptly to these applications.

Iodine as an Antiseptic in Joint Injuries, by A. Gascoigne Wildev.—A striking case is reported in which primary healing was obtained after a very badly soiled traumatic laceration extending into the knee joint. A two per cent. solution of iodine in alcohol was employed, both as a spray on the skin and as a wash for the cavity of the joint and the lacerated wound. Primary immediate suture of the wound was then completed, with the omission of a stitch at each angle to permit of drainage. This method has been followed in a large number of cases in which a joint had been opened, and the results have almost invariably been successful. A point of special interest is the application of the iodine to the skin and wound by means of an ordinary bellows spray. This permits of thorough and intimate application of the iodine and is economical of the solution, as there is no excess present to run off on to dressings. The wound should be sprayed daily until healing is nearly completed, thus preventing secondary infection.

Is Emetine Sufficient for Radical Cure in Amebiasis?—See editorial article, page 79.

LANCET.

December 10, 1914.

Treatment for Prolapsus ani in Young Children, by William Gemmill.—During the act of defecation the position assumed is such that the intraabdominal capacity is reduced, the pressure increased by muscular action, the anus is made to lie on a free surface without the support of the buttocks, the support given by the muscles of the perineum and pelvic floor is reduced to a minimum, and the external sphincter is put on the stretch. These several factors all combine to make the mechanical retention of a prolapsing rectal mucosa almost impossible, even with the aid of strapping together of the buttocks. A method, however, which opposes each of these mechanical factors consists in the application to the back of the child of a long flat splint which runs from the root of the neck to the feet. This splint should be made in two pieces, an upper and a lower of wood, joined in the region of the buttocks by means of an iron ring small enough to support the buttocks, but of sufficient aperture to permit defecation and the toilet of the child. After a brief period the child becomes accustomed to the splint and its use for several months leads to the recovery of the tone of the affected parts so that even severe cases of prolapse undergo complete cure.

Delayed Chloroform Poisoning, by H. P. Fairlie.—A young woman aged twenty-four years underwent a laparotomy, for which she was anesthetized with chloroform. Primary anesthesia was induced with three drams of chloroform on a Schimmelbusch inhaler, the time consumed being nine minutes. Thereafter anesthesia was maintained with a two per cent. vapor of chloroform, the total period of anesthesia lasting only thirty-eight minutes. Sixty-five hours after the operation symptoms began with vomiting of coffee ground matter. This continued at frequent intervals, and had been preceded by restlessness and the vomiting of watery gastric contents. Acidosis and coma soon developed, and death ensued sixteen hours after the first vomiting of coffee ground matter. It is usually stated that the symptoms of delayed chloroform poisoning begin in from ten to forty-eight hours after anesthesia, and it is rare for death to ensue in so short a period as sixteen hours after their onset.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

December 26, 1914.

Ultimate Results of Genital Tuberculosis in the Male, by J. D. Barney.—This is a grave condition, but it does not indicate, as many suppose, infection of the genital tract alone; a careful analysis of many cases shows it to be merely another outbreak of a tuberculous infection which has been in the system sometimes for years. The long life and the good general condition of many of the patients, though suffering from repeated outbreaks of tuberculosis, show that survival depends largely on their ability to become immune. Our efforts should be directed, not merely toward suitable surgical treatment, but also toward helping the patient to develop this all important immunity. For this purpose hy-

giene, sandalwood oil, and tuberculin are essential. The oil should be administered continuously, but tuberculin only after operation; when it should be given cautiously and intelligently, but then maintained almost indefinitely. Prostates which are markedly tuberculous, like those only slightly or moderately infected, will generally take care of themselves after removal of one or both epididymides; the author regards attempts at complete excision of the tuberculous prostate and seminal vesicles as not only useless but impossible. His experience has shown that although both prostate and vesicles are involved in most cases of tuberculosis of the epididymis, their condition will improve or heal after removal of the epididymis. While genital tuberculosis, even if unilateral, generally results in sterility, neither the disease nor the operation for its relief (including orchidectomy) seems in any way to impair masculinity.

Seven Months' Experience with Salvarsan in the Treatment of Syphilis, by K. Nelson and E. F. Haines.—The results do not warrant further use of neosalvarsan in the military service, nor, indeed, by any one who desires to secure the best results in the shortest time. The authors believe that their work with neosalvarsan and salvarsan clearly demonstrates that the latter is the drug which will do this. Four injections of salvarsan, with intensive mercurial treatment, gave nearly twice as many negative serum reactions as five neosalvarsan injections with mercurial treatment. With salvarsan there were sixty-four per cent. of negative reactions in nine months, with neosalvarsan only 33.3 per cent. Complement fixation is of the greatest value in diagnosis, as an indicator to the results of treatment.

Early Recognition of Pulmonary Tuberculosis by Study of Lymphocytic Picture and Albumin Content of Sputum, by John Ritter.—Out of 140 sputum examinations in which no tubercle bacilli were found on repeated tests, forty gave a distinct lymphocyte picture and an albumin content in variable amounts. If lymphocytosis is as characteristic of tuberculous sputum as it is of the serous effusions in tuberculosis, in fact, if tuberculosis is a lymphocyte disease, then these forty samples can be considered as expectorated material from presumably tuberculous subjects, these examinations being in each case strengthened and controlled by a positive albumin content. Thirty-four additional examinations out of the same series, which showed the bacillus absent, gave a negative lymphocyte picture, but a positive albumin content, while seventeen others, negative as to the bacillus, were negative for albumin and positive for mononuclear cells; showing a lymphocytosis of more than fifty per cent. Whether these seventeen samples may be regarded as sputum from tuberculous subjects is a question; it is much more evident that sputum presenting a distinctly lymphocyte picture and a positive albumin content, in the absence of bacilli, speak very probably for tuberculosis, but in the absence of albumin in an otherwise positive lymphocyte sputum, the evidence is not quite so conclusive; and yet it points very strongly to tuberculous origin. In incipient cases of pulmonary tuberculosis, a lymphocyte sputum is usually present, with a greater or lesser albumin content, while tubercle bacilli

may be entirely absent, or only an occasional bacillus may be found. The presence of the mononuclear leucocyte in preponderant amounts, with a positive albumin test, is simply the forerunner, or near the beginning, of positive findings; for the tubercle bacillus, if not already in the sputum, will soon be found. A careful microscopical study of every sample of sputum under examination should first be made for either the presence or absence of bacilli; if this is negative, and there is a preponderance of the small mononuclear leucocytes in every field, together with a positive finding by chemical test of albumin in moderate amount, we are justified in assuming that the source of this expectoration is tuberculous.

MEDICAL RECORD.

December 9, 1914.

Reflex Disturbances Due to Chronic Appendicitis, by C. A. McWilliams.—Ordinarily in chronic appendicitis the diagnosis is rendered evident by localized pain, with or without tenderness and muscular rigidity; the cases are more puzzling in which, with distant reflex disturbances, there are no local signs, or only mild ones, to direct attention to the appendix. The following is a tabulation of such disturbances: Colics in children, simulating gastric or duodenal ulcer, simulating gallstones; nausea; vomiting, gas, intestinal toxemia producing anemia, chronic constipation, chronic diarrhea and colitis; bilious or toxic type, headaches, neurasthenia. On account of the belief that gastric and duodenal ulcers, as well as gallbladder disease, may arise from or be associated with chronic appendicitis, it would seem wiser always to remove the appendix when operating for any of these conditions. In the gas type, which constitutes an important class of cases, the sole complaint is gas in the stomach. In the appendicular toxemia characterized by secondary anemia the administration of iron is improper, as it increases the constipation, and consequently intensifies the toxic symptoms. Apparently, chronic appendicitis may give rise to colitis in three ways: 1. By the inflammation spreading from the appendix directly to the cecum, ascending and transverse colon; 2, through the formation, as a result of the appendicitis, of adhesions between the appendix or cecum and parts of the colon (usually the sigmoid), producing kinks and angles which result in inflammation of the mucosa; 3, by septic material being constantly discharged into the colon from the inflamed appendix, acting as a septic focus.

Intestinal Toxemia and Diabetes, by A. C. Croftan.—Broadly speaking, the picture presented is that of chronic intoxication by decomposing action of putrefactive bacteria upon abnormal albumin fragments. The development of alimentary glycosuria (reduced tolerance) and later diabetes in these cases, is presumably the result of prolonged injury by poisons to the liver and pancreas; the liver being continuously flooded with toxins pouring into the portal system, and the pancreas involved either directly by ascending infection through its ducts or indirectly by way of the liver. The treatment is discussed under three heads, dietetic, medicinal, and surgical. To place these patients on an antidiabetic diet at once upon the dis-

covery of a reducing urine is, of course, bad practice. If the reducing body is glycuronic acid, such a diet is actually harmful. If the urine contains no dextrose, or small quantities of dextrose associated with large quantities of aromatic bodies, the diet should be primarily so arranged that these bodies may become reduced. To accomplish this the diet for a period of days should consist of vegetables, fruit, coarse cereals, bran breads, nuts, milk and buttermilk diluted with lime water, and an abundance of fats, with a minimum of meat, fish, poultry, and eggs, and all preparations made from them. All alcohol, spices, and condiments are forbidden. As a rule, all actual sweets are forbidden at first, but in some instances it is permissible, heterodox as this may seem, to feed these patients, after thorough purgation, exclusively on a sugar solution for twenty-four or forty-eight hours; this reduces the toxemia more rapidly than any other measure, short of actual starvation. After a few weeks, meat, fish, poultry, and eggs may be gradually added; if they are well borne, while the dextrosuria still persists, the amount of carbohydrate ration should be gradually reduced. Medicinally, normal digestive ingredients of the intestine may be supplied or the secretion of the digestive glands be artificially stimulated, or, again, so called intestinal antiseptics may be given to hold the activity of putrefactive bacteria in check. Glycerin extracts of pancreas prepared aseptically are preferable to dried pancreas preparations, and of bile preparations, the bile acid salts are probably the only bile ingredients which become operative in the upper intestine.

Therapy of Fever in Pulmonary Tuberculosis, by E. N. Packard, Jr.—The main points emphasized are, absolute rest in bed, preferably out of doors; artificial pneumothorax in selected cases; a trial with autogenous vaccines, especially when there is copious purulent expectoration; the cautious use, if used at all, of tuberculin, and then only after other measures have failed; hydrotherapy suited to the condition and comfort of the patient; an ample diet, but not necessarily forced feeding, and judicious use of medicinal antipyretics.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

December, 1914.

Comparison of the Results of the Phenolsulphonaphthalein Test of Renal Function with the Anatomical Changes Observed in the Kidneys at Necropsy, by W. S. Thayer and R. R. Snowden.—For the past four years they have used this test in a great variety of conditions, and regard the procedure as of considerable value both in the diagnosis and prognosis of renal disease. Most of the results which have been reported by those who have made use of this method have been based upon clinical observations alone; it seemed to them that further light might be thrown upon the situation by a consideration of fatal cases in which, after the phthalein test had been made during life, a necropsy with careful microscopical study of the kidneys has followed. Their observations show, in severe chronic nephritis, a uniformly low phthalein output which, as a rule, in those instances not interrupted by an acute terminal process, decreases steadily up to

the onset of uremia, and is nearly or wholly suppressed from a day or two to a month before death. Acute terminal processes, which may be unsuspected clinically, are common; and here a sudden diminution in the elimination of phthalein may come on in cases where the percentage previously excreted is not so low as to appear menacing. Chronic passive congestion (cardiac disease) often results in a considerable reduction in the two hours' elimination of phthalein. The results are very variable in individual cases, but as a rule such excretion is rapidly restored with the reestablishment of circulatory compensation. The cloudy swelling observed in acute infections is in some instances associated with considerable reduction in the phthalein output.

Analstalsis and the Surgical Therapy of the Colon, by J. M. Lynch and J. W. Draper.—There is a well defined type of colonic constipation in which constipation is due to preponderance of the analstaltic over the prostatic colonic wave. The physiological hypothesis which should explain the failure of cecostigmoidostomy may perhaps be found in the fact that the current is distaltic or oscillating. Reasoning from this hypothesis, the authors have resorted to a technic (practised on animals and the cadaver) the object of which is to render the distaltic wave constant or monostaltic. An ileac segment, made of proper length to reach from the cecum to the sigmoid, is slipped up on the ileum and united to the cecum throughout about half its length, and terminally the aboral ends are sutured together, so that a circle results. The end to side implantation into the sigmoid is thus converted into a single procedure. The oral extremity of the ileac segment is then inserted into the oral extremity of the cecum. As a result, material can pass from the cecum to the sigmoid, but cannot reverse its direction.

The Subcutaneous Injection of Oxygen as a Therapeutic Measure, by John McCrae.—In this procedure the needle, attached to rubber tubing from a high pressure oxygen cylinder, is pushed through the skin, previously painted with tincture of iodine, and, according to the less or greater depth to which it reaches, the oxygen will be seen infiltrating in all directions or a gradually increasing lump rises. It is usual to raise a lump of half the size of a football, which takes from thirty seconds to a minute. The following states have proved to be amenable to the treatment: Accidents from anesthesia; edema of the lungs or glottis and accidental interference with respiration by disease of the upper part of the respiratory tract; marked dyspnea with defective oxygenation, as in cardiac and renal disease; asphyxia of infants at birth; syncope; electrocution.

AMERICAN JOURNAL OF ORTHOPEDIC SURGERY.

October, 1914.

The History of Bone Graft, by W. E. Gallie.—The paper describes experimental studies to determine the histological changes occurring in bone grafts. Gallie transplants autogenous (one case in which the transplant was boiled) and heterogenous grafts, and studies the results at intervals of one, two, three, and eight weeks. His observations are:

1. Death of the graft.
2. Revascularization of the graft.
3. Concomitant absorption of the dead bone and production of new bone by the bone cells which invade the graft along the route of the new blood-vessels.

An Experimental Study of Osteogenesis, by Leo Mayer and Ernest Wehner.—All four series of experiments—transplants of periosteum, subperiosteal resections, cap implantations, and bone transplants—combined to emphasize the osteogenetic function of the specific osteoblastic cells of the periosteum and the inability of the adult bone cell to form new osseous growth. Bone growth occurred in all the transplants of periosteum, and from the periosteum after subperiosteal resection. It was, however, absent in the cap experiments. In the bone transplants, the adult bone cells of the graft gave no evidence of activity, whereas the periosteum showed marked osteoblastic properties. Similar osteogenetic power was manifested by the transplanted endosteal cells lining the narrow cavity and the Haversian canals, provided that their vitality was maintained by intimate union with the tissues of the environment. Bone macroscopically bare of periosteum can be successfully transplanted into the soft parts because of adherent periosteal cells, and of living endosteal cells. The classical conception of a complete necrosis of the bony portion of the transplant must be modified, since, though the majority of the transplanted bone cells necrose, numerous cells can maintain their vitality until the graft has become vascularized. These cells, however, give no evidence of osteogenesis. The process by which the necrotic bone of the transplant is replaced by living bone consists not only in the usual sequence of lacunar absorption and subsequent bone apposition, but in a creeping replacement. In this process the young bone cells, before they have assumed the adult form and before the bone has become lamellar in structure, show evidences of direct cell division, and of power to absorb necrotic bone and form new bone. The living osseous tissue advances into the old by the intercellular deposit of bone, also probably by a direct advance of the young bone cells in the old lacunae.

Ununited Fractures; with a Study of Bone Repair, by George W. Hawley.—The author reviews the growth, maintenance, and repair of bone, and the processes of repair in general, and discusses the various efforts to be made to prevent and to correct the failure of repair in fractures. From his personal studies in ununited fractures he is inclined to believe that the nonoperative methods are best, basing his treatment on reimmobilization and weight bearing. When these simple methods fail then the operative measures are to be considered.

Treatment of Paralytic Scoliosis by Bone Grafting, by Herbert P. H. Galloway.—A description of his operation, treatment, and results of three cases of paralytic scoliosis by bone grafting. He contends that the operation should be advised and performed in those cases in which the deformity is increasing, in which the deformity is lessened when the patient is laid face downward on a table, and if the patient's spines are flexible. The result in the one case, of the three which presented these features, was highly satisfactory.

Pott's Disease; Albee's Bone Grafting Operation, by Edwin W. Ryerson.—He presents his results in a series of twenty-six cases of Pott's disease operated in by Albee's method of bone grafting, covering a period of two years, beginning two and one half years back. All of the patients were first treated by conservative methods and only operated upon when all of these measures failed. Twenty-one are apparently well, and the remainder are distinctly improved and may yet make complete recoveries. He has had no mortality.

Subluxations of the Atlas upon the Axis, by Charles Ogilvy.—From a study of his case, and of forty-six other cases of subluxation of the atlas upon the axis, he classifies them primarily into three groups: those in which the displacement is on a horizontal plane; those with displacement on the horizontal and vertical planes; and those with the displacement on the same plane but with rotation around the axis. He points out that a sudden jar or jolt may produce the injury; pressure symptoms may be slight, delayed for days and weeks, or absent altogether. Fractures are frequently associated; the associated fractures in themselves are not of as great significance regarding prognosis as in the support afforded the atlas. Immediate reduction should be attempted at the time of the accident; and operative treatment should only be advised when other methods fail to relieve symptoms.

Partial Luxation of the Atlas on the Axis, by J. D. Griffith.—In two cases he followed Doctor Walton's method of reduction and treatment. His three cases were successful. He emphasizes the fact that the x ray picture is proof positive of the condition, and should be taken with the patient's mouth open.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF
WOMEN AND CHILDREN.

December, 1914.

The Freiburg Method of Dämmer Schlaf or Twilight Sleep, by Knipe.—There is danger if the twilight zone is obtained too rapidly. It is then that the unpleasant secondary effects upon the mother and child make their appearance. Twilight sleep should come gradually as the result of small and nontoxic doses of scopolamine. Amnesia and not suppression of all pain is the result desired. At the proper stage there should be a clouded consciousness, with perception still present, but memory of present events lost. Favorable as the results have been in the past, they will improve.

JOURNAL OF NERVOUS AND MENTAL DISEASE.

November, 1914.

Spinal Fluid Cell Counts in Untreated Cases of Cerebrospinal Syphilis.—H. W. Mitchell, Ira A. Darling, and Philip B. Newcomb consider the following facts to be reasonably well established: 1. Great variation in the cell count may be found at short intervals in any stage of the disease. 2. Both high and low average counts persist for months at a time in various stages of the disease. 3. A low or falling count is common, but not universal before death. 4. A reduction in the cell count to the normal limit frequently occurs in progressive, untreated cases at any time during the course of the

disease. 5. The reduced cell count, accompanied with persistence of a positive Wassermann in the fluid, cannot be regarded as having valuable prognostic significance.

Psychoses among Negroes, by E. M. Green. (See editorial article in our issue for December 19, 1914, page 1224.)

JOURNAL OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.
September, 1914.

Mastoiditis, by William S. Tomlin.—The mastoid cavity is probably involved in all cases of acute suppurative otitis media. In the beginning of such cases, however, when the tympanum is the seat of the trouble, limitation here by an early incision of the drum may prevent extension to the mastoid cells. The exclusive invasion of these cells by pathological processes is, if not impossible, very rare; but there are cases in which the drum may be of practically normal appearance and the hearing so slightly reduced that only exact testing will reveal a defect, and yet operation or autopsy discloses a suppurative mastoiditis. The causes of mastoiditis are mainly those of otitis media, among which are obstructions of throat and nose that in like manner affect the Eustachian tubes. Adenoids are probably second to none in importance or frequency; and degenerated tonsils, especially the enlarged and submerged usually associated with them, are among the most notable predisposing agents. Of the exanthemata, scarlet fever leads with measles second. Streptococcus infection of the middle ear is the most important form. The influenza bacillus and the pneumococcus in mixed and pure culture are competitors in frequency and virulence. Streptococcus mucosus is in a class of its own because of its great virulence after a period of comparative quiescence. Rather sudden cessation of discharge both in acute and chronic cases, without corresponding improvement in other phases, is cause for genuine alarm. Sudden relief from much pain may only show that room for pus under pressure has been obtained by the invasion of other and more vital structures. Apparent relief of an acute condition in three to ten days is likely to be one of Streptococcus mucosus. In three to six weeks it is likely further to manifest itself by a fulminating type of a severe character.

Proceedings of Societies.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Fortieth Annual Meeting, Held at Cincinnati, October 27, 28, and 29, 1914.

The President, Dr. D'ORSAY HIGHT, of Chicago, in the Chair.

(Continued from page 45.)

Functional Tests.—Dr. J. T. GERAGHTY, of Baltimore, stated that the necessity for functional renal tests arose from their inability to recognize the presence of renal disease, and, above all, inability to recognize the extent to which the presence of renal injury interfered with the function of the

organ. On account of the great number of functional tests now proposed, it became necessary to know which tests were the most useful for practical purposes. In true nephritis they had found that the phthalein test in combination with a blood urea estimation, furnished practically all the information which could be derived from these functional studies, except in rare instances. Chloride estimations were useful in a special group. For cases of urinary obstruction, the phthalein test was incomparable, and only when the phthalein excretion was very low was it necessary to have a blood urea estimation. The presence of a high blood urea and a very low phthalein should contraindicate operation, and called for more protracted preliminary treatment. For estimation of function in association with ureteral catheterization, the phthalein test was the simplest and furnished the most accurate information. A considerable increase in the blood urea only occurred in the presence of severe bilateral renal disease. While functional tests were valuable and supplied data frequently unavailable from any other source, it should be remembered that they revealed only the excretory capacity of the kidney. By themselves they did not make the diagnosis or supply the prognosis. They only indicated the functional value of the kidney at the time at which the test was performed, but could not by themselves indicate what the renal function would be tomorrow or next week. This latter information must be derived from the knowledge of the underlying pathological process which was producing the reduced function. Functional tests should always be used in conjunction with careful clinical studies.

Physical Signs Referable to the Diaphragm and Their Importance in Diagnosis.—Dr. RICHARD DEXTER, of Cleveland, said that the situation of the diaphragm made it possible for the structure to be involved frequently in diseases of the organs either immediately above or below it. This involvement would often be demonstrated by very definite physical signs. Conditions which involved the diaphragm might be divided into two groups: 1. Those in which the symptoms of involvement depended on the irritation of the nerves which supplied the diaphragm. 2. Those cases in which the position of the diaphragm was affected. The result of this was that the diaphragm was put on a greater or less mechanical advantage. Irritations of the pleural or peritoneal coverings of the diaphragm gave rise to symptoms at a distance from the structure. The paths of pain distribution conformed to type of the viscerosensory reflex in the sense of Mackenzie and Head. Further confirmation of this view was to be found in the view of Capps.

He reported two cases illustrating the pain distribution in diaphragmatic irritation, one in which no lung involvement could be made out, which might have been considered as an acute condition within the peritoneal cavity, had not the evidence of diaphragmatic irritation been noted. Pain in such inflammations of the diaphragm was referred along the phrenic nerves and transmitted to the third or fourth cervical segments or along the sixth to the twelfth intercostal nerves to the lower dorsal segments. The inspiratory contraction of the diaphragm tended to draw the subcostal angle toward

the median line. Under normal conditions this contraction was not strong enough to overcome the antagonistic action of the scalene and intercostal muscles. When the position of the diaphragm was lower than normal, the contraction of the muscle would be more direct, and would, therefore, equalize or overcome the action of the scalenes and intercostals. The result would be a retraction of the costal angle toward the median line during inspiration.

Relation of the Gastrointestinal Tract to Joint Disturbances; Value of Eliminative Treatment.—Dr. WILLIAM A. MOWRY, of French Lick, Ind., pointed out that derangements of the gastrointestinal tract operated in the production of chronic affections, such as rheumatism, gout, obesity, and probably diabetes. He had classified joint affections, excepting those purely traumatic, into infectious or toxic arthritis, true gout, and autotoxemic arthritis. In the first group were those in which definite foci could be determined or strongly suspected, for which surgery and vaccines were the best recognized methods of cure. From a series of 244 patients suffering from joint disturbance, ninety-two were excluded in the consideration of the relation of the gastrointestinal tract to such cases. The remaining 152 cases were divided into two groups, fifty-nine true gout and ninety-three autotoxemic arthritis, both terms often covered by gouty or lithemic. The principal points in the diagnosis of true gout were family history, eating and drinking habits, sex (gout occurring oftener in the male than in the female), the clinical history of acute metatarsophalangeal joints attacking usually the great toe, cardiovascular changes, tophaceous deposits, abnormally low uric acid excretion, except during acute attacks. Gastrointestinal disturbances were common to both groups, and in the second group they had seemed to be important causative factors in the arthritis.

The diagnosis of acute toxemic arthritis had been governed in these ninety-three cases first by the arthritis itself. Most of the cases were of chronic type. The fingers in these were affected equally in two thirds of the cases, with toes, wrists, ankles, and elbows next in order of frequency. Constipation was frequent in these cases, a few had diarrhea, while some complained of alternating constipation and diarrhea. Only one third gave a history of headache, usually coincident with stomach or bowel attacks. In forty-eight per cent. of cases mucus was present in the stools, constantly or intermittently. Fully half of the patients complained of some form of indigestion, most frequently with eructation and regurgitations.

Examination in most cases confirmed the diagnosis of gastritis, colitis, chronic appendicitis, and probably cholecystitis. The urinary findings showed an average specific gravity above 1.025 with high acidity. Nearly all had a large amount of indican, no albumin or sugar in any, and traces of bile in but five cases. There were a few showing bile in the casts; large numbers of calcium oxalate crystals, in all but eight, and an excess of uric acid in over one half. Blood pressure showed an average of 149 systolic, which was high for the average age—forty-seven years.

In the diagnosis of acute arthritis based in two cases on loose putrefying stools, and in one on impacted fecal masses in the colon, immediate relief was given by internal irrigation, free purgation, and diet. Salicylates were used in the autotoxemic group, and atophan in the gouty condition for the relief from pain, while fomentations and other hydrotherapeutic measures were regulated for each individual patient. Laxative waters were used for free elimination in all but two cases. Paraffin oil and castor oil were given when too large doses of a saline irritated the gastrointestinal tracts. The results of treatment were most gratifying. Seventeen patients were relieved entirely from pain or stiffness in the joints; all but fifteen of the remaining showed marked improvement. Patients were instructed as to the importance of diet and regulation of the bowels to insure permanent benefit.

Present Day Conception of the Treatment of Nephritis.—Dr. ARTHUR R. ELLIOTT, of Chicago, stated that advances during recent years in the therapy of nephritis had not been notable. The brilliant work of experimental pathologists in the production of the study of nephritis in animals had helped a little in the treatment of the disease. Improvements in treatment might be summarized as a better handling of the cardiac problem, a better standard of control in diet, and improved prophylaxis. The most productive field of etiological investigation today was the influence of chronic focal and confined infection in the causation of systemic disease. That this factor might play an important part in the etiology of chronic nephritis not only appeared probable, but it was strongly suggested by experience as the search for infective foci became more thorough. As a primary measure of treatment, every case should be thoroughly examined for infective foci and these obliterated by radical treatment when found. Syphilis and chronic lead intoxication were other insidious factors that should be combated. In chronic nephritis many of the old qualitative restrictions had been done away with. Recent observations apparently showed that in the vast majority of cases during the stage of cardiac compensation, that total function of the kidneys was well up to normal as shown by the phthalein test and the ratio of nonprotein nitrogen in the blood. Aided by periodical functional testing to check up the kidney condition, the diet might be so regulated as to maintain general nutrition and kidney conservation on a parity.

He advocated the performance of fluid and salt excretion tests in every case of chronic nephritis before laying down the diet. If one wished to gather all possible clinical data, he would not rest satisfied with the diagnosis of nephritis, but would proceed to determine for prognostic and therapeutic purposes the degree to which the functional impairment of the kidneys had advanced. This could be done by means of the functional tests, and the best and simplest test for total function was the phenol-sulphonaphthalein test of Rowntree and Geraghty. This might be used with advantage in the study of any case, applying to the test at intervals in order to keep track of the functional index, thereby affording help toward regulating diet and instituting eliminative measures. The most important

item in the treatment of chronic nephritis was the preservation of cardiac compensation. The high blood pressure and cardiac hypertrophy of chronic nephritis constituted a compensatory mechanism enabling the kidneys to maintain adequate function. They consequently were essential to the preservation of life and should be protected by every hygienic and dietetic safeguard. High blood pressure should not be made the object of direct therapeutic attack. Nitrites should be reserved for emergency use to combat such developments as angina, cardiac asthma, etc. The appearance of dropsy in primary chronic nephritis almost invariably signified the advent of cardiac failure. At this stage the digitalis bodies became the mainstay of treatment and should not be withheld because the blood pressure was high, as they acted just as well or even better with a high blood pressure as with a falling pressure.

Pathology of Syphilis of the Heart.—Dr. ALFRED SCOTT WARTHIN, of Ann Arbor, stated that the pathology of syphilis of the heart, as given in the majority of the textbooks on pathology and medicine, was about fifty years old, based upon observations made by the generation who worked under the influence of Virchow. Even the best textbooks on special pathology at the present day, Kaufmann's and Aschoff's, gave little attention to cardiac pathology from this disease. Observations made by the writer based upon the presence of the spirochete in the myocardium had greatly extended their conceptions of cardiac syphilis and its clinical significance. Cardiac syphilis must at the present time be reviewed from a broader standpoint of acute parenchymatous and interstitial lesions due to the presence of the spirochetes in the myocardium, rather than from the more restricted standpoint of gumma, arteriosclerosis, and fibroid heart. He had shown that purely parenchymatous lesions, such as cloudy swelling, fatty degeneration, hydropic degeneration, atrophy, and coagulation necrosis, might be the result of a localization of spirochetes in the heart muscle, and that such parenchymatous lesions might exist in the entire absence of any interstitial changes. As the result of such purely parenchymatous lesions, cardiac hypertrophy and dilatation might be produced, as well as serious disturbances of the heart's action and efficiency. In fatal cases of cardiac insufficiency and dilatation, the only myocardial lesions present might be purely parenchymatous. That such lesions were syphilitic was shown by the presence of spirochetes in the muscles of such hearts. Between such parenchymatous lesions and the condition of ultimate fibrosis there existed every possible stage of gradation. The parenchymatous changes at times were accompanied by interstitial edema, cellular infiltration, and cell proliferation. In a great majority of cases these acute interstitial changes were of slight degree and could not be recognized by the naked eye upon inspection of the heart. The separation of the muscle fibres in such cases was often due to a fluid containing nuclei, a peculiar form of myxedema which was especially common in congenital syphilis. With an increase in the number and virulence of the spirochetes, the interstitial changes might become more marked and the picture of a localized or diffuse interstitial myocarditis was produced.

These interstitial changes were particularly prominent in the neighborhood of the smaller branches of the coronary vessels, often partaking of the nature of a periarteritis or a periphlebitis. Spirochetes could always be found in these interstitial lesions until the connective tissue proliferation became scarlike or hyaline. Such fibroid areas rarely contained the spirochete. But wherever there were cellular portions or a connective tissue that was edematous in character, typical spirochetes could be found by the Levaditi method. The fibroid areas were therefore to be looked upon as the result of local healed processes. In the writer's experience, autopsy findings showed the presence of such syphilitic scars in the heart of every syphilitic, whether the disease was active in some part of the body or cured. In association with these scars in some part of the heart, on serial section he had always found active areas that contained spirochetes.

He regarded the parenchymatous and interstitial lesions as the most important result of syphilitic infection of the heart. He had found the gumma to be very rare, having met it but once in acquired syphilis, but much more frequently in congenital syphilis in the form of a myxogumma. As sequelae to these parenchymatous and interstitial changes, he found the fibroid heart as the ultimate condition. There might be coronary sclerosis and thrombosis, anemic infarction, localized endocarditis, or pericarditis, cardiac thrombosis, cardiac aneurysm, dilatation, or heart rupture. The clinical symptoms varied from the mildest grades of cardiac insufficiency to the most severe. Angina pectoris was frequently present in the fibroid stages, and in a large number of cases there were marked disturbances of rhythm. Cardiac thrombosis frequently led to sudden death. The important clinical lesson to be derived was that syphilis, especially latent or cured, was the most important etiological factor in heart disease and that their conceptions of syphilis therapy must be extended to periods of treatment over many years, if not through the entire life of the patient, rather than for a restricted term of two, three, or even five years.

The Emotional Factor in the Psychoneuroses.

—Dr. LOUIS MILLER, of Toledo, stated that in analyzing cases one would find the mental preoccupation to have followed along certain special lines. In one person it might be in regard to his health, in another it concerned the affections, and in another sexual matters. In the first place, by persuasion one endeavored to reeducate the patient to think clearly in a matter of fact way, to orient himself, to see the true relationship of facts. Second, an effort was made to patch together the disintegrated personality. Third, the affective state was influenced for the better by reassurances of a cure, by the patient's confession, liberating him to an extent from the effects of possible remorse and self reproach, but redirecting him to definite aims in affairs and ambitions, and by comforting him. On the whole, this method had given the author better results than any other. If the cure succeeded, there was less chance of relapse than with methods like simple suggestion, or the use of electricity, drugs, etc.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Problem of the Nations. A Study in the Causes, Symptoms, and Effects of Sexual Disease, and the Education of the Individual therein. By A. CORBETT-SMITH, M.A. Oxon.; Barrister-at-Law; Captain (formerly R. F. A.); F. R. G. S.; Officier de l'Instruction Publique; Editor of the Journal of State Medicine; Lecturer in Public Health Law at the Royal Institute of Public Health. New York: Paul B. Hoeber, 1914. Pp. ix-107. (Price, \$1.)

That a barrister-at-law should have been inspired to compile a work on gonorrhea and syphilis is sufficiently remarkable; Mr. Corbett-Smith's excuse is that existing treatises on venereal disease are too technical, that they are written "with the eye glued to the microscope." Getting this information from the highest authorities on the subject, the author has put in simple language the symptoms, dangers, prevalence, etc., of venereal disease and dedicated the result to young men, their mothers and fathers, and those who hope to become such. Admitting the necessity for such a book from a layman, we cannot help noting that the author's sole idea of prophylaxis is embodied in the perennial and useless advice to youth of tired middle and old age—abstinence. No other remedy is offered. The young man is to work and to play football till he is too exhausted to do anything but sleep; in other words, he is to burn the candle at both ends. Anyone who knows armies, will appreciate this statement of Mr. Corbett-Smith's: "In the German army a man is kept hard at it from morning to night. He has little opportunity to bother about (1) women, and he turns in early and sleeps as soundly as he works." Yes, indeed! This is equally true of the French, English, and American armies. We think the problem of venereal disease must be approached from some other angle; attempts at a sort of mental emasculation will not solve it.

Local Anesthesia, Its Scientific Basis and Practical Use. By Professor Dr. HEINRICH BRAUN, Obermedizinalrat and Director of the Kgl. Hospital at Zwickau, Germany. Translated and Edited by PERCY SHIELDS, M.D., F.A.C.S., Cincinnati, Ohio. From the Third Revised German Edition. With 215 Illustrations in Black and Colors. Philadelphia and New York: Lea & Febiger, 1914. Pp. viii-309.

Braun is known the world over as the father of local anesthesia. His work in German is a classic. It is most fortunate that this work is now available in the first English translation by Shields from the third German edition. Dr. Percy Shields was preeminently fitted for this task through months of study with Professor Braun. The book is increased in interest from the fact that Shields became so entirely engrossed in his studies at Zwickau and in this subsequent translation, that he paid the penalty of over-concentration with his life.

There is no method of anesthesia that is absolutely devoid of mortality, and the statement in the preface that local anesthesia has "no mortality" must be accepted as the opinion of an enthusiast seeing local anesthesia under the best possible conditions. There is no question, however, about its relative safety. On the other hand, there are many operations under so called local anesthesia that are painless only to the self hypnotized operator. This unfortunate fact somewhat retards the advance of local anesthesia, but it should also create a demand for Braun's work.

Chapter I gives a most interesting history of the discovery of local anesthesia up to the discovery of cocaine. The next few chapters deal with anesthetic methods—cold, nerve compression, anemia, methods of using, indications, comparative value, and general technic of the local anesthetic agents. Cocaine, the author thinks, is obsolete, novocaine and alypin being the drugs of choice. This takes us halfway through the book. The remainder, beginning with

Chapter XI, on operations on the head, deals with certain operations in different parts of the body in such a thorough manner that the book is invaluable to the specialist and the general surgeon alike. Besides these, specific directions are given for such operations as the radical mastoid, thyroidectomy, tracheotomy, resection of the rib, amputation of the breast, appendicectomy, umbilical, inguinal, and femoral herniotomy, and a long list of genitourinary operations.

The book concludes with minute details of many operations upon the extremities, from such major operations as dislocation of the hip joint to that for hallux valgus and similar operations. The two hundred and fifteen illustrations scattered throughout the text greatly increase its value.

With Sabre and Scalpel. The Autobiography of a Soldier and Surgeon. By JOHN ALLAN WYETH, M.D., LL.D. Illustrated. New York and London: Harper & Brothers, 1914. Pp. xx-335.

The record of a long, eventful, and successful life is set forth in a simple, straightforward, unaffected manner by Dr. John A. Wyeth in this autobiographical work. The picture drawn of the social life of northern Alabama before the Civil War is interesting and instructive. The reminiscences which are given of the services of the sixteen year old boy with General Joseph Wheeler's cavalry and with Morgan's men, shows that war then as now meant privation, suffering, and strenuous effort with but little meed of glory. The picture of the life led by the Confederate prisoners in the Federal military prison at Indianapolis proves that unrestricted authority is apt to breed brutality everywhere. The Andersonville prisoners are not the only prisoners of war who have suffered. As the reader follows the author through medical college, through his experiences as a steamboat pilot, a contractor, a merchant, as a student in New York, Paris, and Vienna, and finally as founder of the Polyclinic school for post-graduate study, and as an author of textbooks, he cannot but be impressed with the indefatigable industry which enabled one man to accomplish so much. From a purely literary point of view this volume does not compare favorably with the *Life of General Forrest*, published by the author some years ago, which was one of the best pieces of biographical work ever written by an American; but as a frank, unaffected recital of the principal incidents in a life full of many interesting experiences the book is well worth reading.

Yellow Fever Commission. (West Africa.) First and Second Reports. London, 1914. Pp. 180.

These reports of the West Africa Yellow Fever Commission present a summary of the work done from January, 1913, to April, 1914. The first contains a statement of the method of work adopted by the commission, also statements of the problems submitted to the investigators, with a list of questions to be answered and a routine to be followed in making the various studies. The commission estimates that the investigation will require the sum of £5,000 per annum. Blank forms are furnished for recording the results of the different examinations. In the second report the commission reviews its work and presents a historical retrospect of the occurrence of yellow fever on the West Coast of Africa as a whole; of its occurrence in the colonies, both British and foreign; on fever in the British Navy on the West African Station; and of the health conditions in the colonies during 1862, a year of exceptional prevalence of yellow fever; of the Freetown, Gold Coast, and Southern Nigeria epidemics in 1910, of the Gold Coast and Gambia epidemics in 1911, and of the Gold Coast epidemic in 1912. They also present a study of clinical types of racial immunity and of yellow fever in childhood and a table showing the incidence of yellow fever in West Africa from 1900 to 1914. There is a bibliography, a list of investigators and members of the West African medical staff engaged upon the work of the commission and a list of reports already received. They conclude: 1. Yellow fever has occurred from time to time since 1778 in various parts of the British West African colonies. 2. There is no evidence to show that the infection in each outbreak has been introduced from outside Africa. 3. The mild nature of the attack in certain cases of yellow fever makes the identification of such cases a

matter of great difficulty. It is, therefore, essential that in the future all cases of fever should be carefully observed and classified in order that, so far as possible, such mild cases of yellow fever may not pass unrecognized. 4. The attention of all workers at this subject should be specially directed to the discovery of a clinical test for yellow fever. The commission does not in the least degree underestimate the importance of the researches which they are prosecuting in connection with the nature of the virus, nor of the research into the appearances by which its presence may be recognized in the body of the mosquito; indeed, it is quite possible that by such researches the desired clinical test may be found, but the extreme practical importance of being able to determine whether a mild case of fever is or is not yellow fever renders it essential that all possible methods should continue to be employed. 5. The commission is of opinion that the day has gone by for endeavoring, by the use of euphemistic terms, to conceal the presence of yellow fever, and the only hope of eradicating the disease lies in boldly facing the facts; failure to take all possible steps to destroy a focus is an offense against the comity of nations. The report contains four good maps; one of Free Town, one of Secondree, one of Accra, and one of Bathurst.

Diseases of the Nose, Throat, and Ear, Medical and Surgical. By WILLIAM LINCOLN BALLENGER, M.D., Professor of Otology, Rhinology, and Laryngology, College of Physicians and Surgeons, Department of Medicine, University of Illinois, Chicago, etc. Fourth Edition, Revised and Enlarged. Illustrated with 536 Engravings and 33 Plates. Philadelphia and New York: Lea & Febiger, 1914. Pp. xi-1079.

In view of the extended progress that has been made in this branch of medicine in comparatively few years, a new edition of this book seems timely. Many changes have been made and much new material has been added. Special effort appears to have been exerted to bring the chapter on the labyrinth up to date. One needs but to read this section to realize what a large amount of work has been done on the subject by different investigators, and the vast amount of labor necessary to collect and present in such an orderly and systematic manner the various results obtained. Thirteen original colored plates have been inserted to illustrate the physiological and pathological manifestations of nystagmus, while twelve drawings picture the Neumann and the Hinsberg operations. The addition to the discussion of the labyrinth alone amounts to over 100 pages. Further evidence of the new material is the full description of Mosher's frontoethmoid operation, with the necessary drawings to show each step. Haynes's operation on the cisterna magna is also fully described and illustrated. The Hiss leucocyte extract therapy is considered in detail. The chapter on otosclerosis has been revised; the subject of meningitis has been rewritten; the section on abscess of the brain has been subjected to careful revision, and so on. Numerous additions and alterations in the text is evident throughout, while the elimination of obsolete matter is noted.

We regret to note the evidence of much carelessness in the proofreading. This fault is all the more flagrant since the same typographical errors occurred in previous editions and the author's attention was especially called to their existence after the publication of the third edition. Notwithstanding the existence of certain faults, however, which do not necessarily detract from the scientific discussions, the present edition of Doctor Ballenger's book is probably the best balanced presentation of the subject on the market today.

The Blood Pressure Effects of the Application of Creatin to the Cerebral Cortex. By ROBERT STANTON SHERMAN, University of California Publications in Physiology, Vol IV. Issued September 10, 1914. One Plate. Berkeley: University of California Press, 1914. Pp. 201 to 206.

As the result of the application of creatin to the brain of rabbits, Sherman found that the epileptiform convulsions produced were accompanied by characteristic elevations of blood pressure, which followed the muscular paroxysms. The rise of blood pressure occurred after ligation of the supranal arteries and was consequently thought not to be due to excessive production of epinephrine. Curare prevented the blood pressure changes.

Interclinical Notes.

We are glad to give here our unasked opinion of the *New Republic* which publishes its tenth weekly issue on the 9th inst. A dignified but not priggish journal with a broad outlook, high ideals, and the ability to discuss objectively the problems of the State and Nation, the output in art, music, and literature, has long been wanted in this country by a clientele which, we believe, includes many of our colleagues; a clientele large enough, let us hope, to make it profitable. Such a journal is the *New Republic*, the inauguration of which is a sign of the times of most encouraging significance.

* * *

Whatever our duties to the Filipinos may be, we agree with the *Outlook* for December 30th, that all who are interested those islanders will be more than interested in reading at first hand Mr. Worcester's illuminating comments on the present status of health work in the Philippines and on the destruction to all intents and purposes of the widely known Philippine Bureau of Science. It is reasonable to suppose that the superb bulletins of this bureau represented fairly the average of our accomplishment in the islands, and if we are to see them no more, the loss to science and to American scientific prestige is very great. If other equally successful reforms in the Philippines have been recently abolished, some non-political investigation is in order.

Several people have written to the doctor's friend, *Puck*, lately to complain of some of the new pictures—"rotten as hell itself," as one of them says gently. The pictures are rapturously praised by other correspondents. Of their artistic merit there can be no two opinions; and, as to their quality, it seems to us that anyone who objects to them has a mind of pathological suggestibility, if, indeed, his prostate gland is of normal size and consistency. Either condition is susceptible of successful treatment.

* * *

That nervousness, amounting at times to a veritable *subultus tendinum*, that you may have observed among your wealthy friends, is probably due to the articles by Charles Edward Russell in *Pearson's Magazine*. The present debate in Europe has taught us what a splendid figure of speech is "the entrenched forces of capitalism." Mr. Russell, in the January issue, spills shrapnel and forty-two cm. stuff into the trenches, and as there seems to be no organized Red Cross work in the capitalist terrain, the mortality and suffering are great and intense.

* * *

"If the private owners of industry in this country cannot on the one hand employ the people and cannot on the other hand supply the needs of the people for plain necessities of life, the Government at Washington should try its hand." This is an editorial comment in *Pearson's* for January, 1915. This sort of thing is generally supposed to be red flag literature, but as it is generally accepted that a government has the right to call upon citizens to bear arms, why has it not the duty to feed them, at least at cost? The longer we think over the matter, the more absurd appears our present custom of permitting a profit on the necessities of life.

* * *

Current Opinion for December lays great stress on the entrance of Turkey into the European War; it also devotes space to a consideration of Cramb's book on Germany in which he wrote of the revival of the worship of Odin to the detriment of Christianity. With this cult of the ancient Scandinavian deities, the followers of Mohammed, Buddha, Brahma, Zoroaster, and Christ, all of whom are represented in the field, will probably have little in common; but the inevitable close contact of the exponents of various religions should apparently result in a mutually tolerant attitude, and may have far reaching results on future missionary undertakings.

* * *

Comments on an interview with Mr. George P. Brett form a feature of the *Outlook* for December 16th. In this interview, which appeared in the *Atlantic Monthly*, Mr. Brett blamed the alleged decline in the reading of serious books on the indulgence of American parents, who feel obliged to offer to their sons and daughters well nigh un-

limited opportunities for pastime and amusement, in place of hard study and instructive reading. This accounts for a certain lack on the part of the rising generation of acquaintance with good literature. The result in later life is likely to be the development of a "butterfly habit of mind," which is too often apt to be satisfied with newspapers and cheap magazines, and which finds change and recreation in automobiling, dancing, golf, and in listening to mechanically produced music and in looking at moving pictures. The *Outlook*, however, thinks that the enormous circulation of very good periodical literature has much to do with the diminished sales of good books, and believes that the average man of today compares favorably, as to general intelligence, with the man of fifty years ago.

* * *

An article which we should wish every physician, including him of the Pacific coast, to read is Japan's Platonic War, by Eliza Rulimah Scidmore, in the *Outlook* for December 23d. We are beginning to think that the yellow peril is confined to our prejudices. Frank Marshall White, formerly a distinguished English correspondent of a New York daily paper, has an entertaining description of the new warden of Sing Sing, Thomas Mott Osborne, and his novel theories concerning the guests of his establishment. Although a peaceful publication, the *Outlook* believes that we should have better defenses against invasion than the irenic commonplaces of a Secretary of State.

* * *

The *Strand* for January, 1915, seems to manage to steer clear of the war, except that it has portraits of the handsome and warlike rajahs who have sent money and troops to the front. Ianthe Cavendish's story of Darwin, a remarkably intelligent monkey, is of interest to students of comparative psychology. Harry Furniss solves the mystery of the rapid sketching with which patrons of the cinematograph are familiar. Natural Stereoscopes, by Louis Brennan, C.B., is a novel amusement founded on optical principles that will appeal to ophthalmologists and puzzle greatly those who are not versed in the phenomena of physiological optics.

* * *

When mankind decided to cast out Greek and Roman mythology, the story of the salamander went with it. It is difficult to believe in the type advanced in the recent novel and play. Some girls do get through an idle city existence unscathed, but they are dull, sordid, stupid creatures without imagination or "temperament." There must be few people nowadays who are not aware that the salamander is quite as combustible as any other kind of lizard.

Meetings of Local Medical Societies.

MONDAY, January 11th.—New York Ophthalmological Society (annual); Society of Medical Jurisprudence; Roswell Park Medical Club, Buffalo; Williamsburg Medical Society, Brooklyn; New Rochelle Medical Society.

TUESDAY, January 12th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Federation of Medical Economic Leagues of New York (annual); Ontario County Medical Society; Medical Society of the County of Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine (Section in Medicine); Newburgh Bay Medical Society (annual); New York Obstetrical Society; Medical Society of the County of Oneida (annual).

WEDNESDAY, January 13th.—New York Pathological Society (anniversary); New York Surgical Society; Alumni Association of Norwegian Hospital; Schenectady Academy of Medicine; Medical Society of the Borough of the Bronx (annual); Richmond County Medical Society; Dunkirk and Fredonia Medical Society; Rochester Academy of Medicine (annual); Medical Society of the County of Dutchess; Brooklyn Medical Association (annual).

THURSDAY, January 14th.—New York Academy of Medicine (Section in Pediatrics); Gloversville and Johnstown Medical Association; Physicians' Club of Middletown; West Side Clinical Society, New York; Brooklyn Pathological Society; Blackwell Medical Society of Rochester; Jenkins Medical Association,

Yonkers; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of Village of Canandaigua (annual); Medical Society of the County of Allegany.

FRIDAY, January 15th.—New York Academy of Medicine (Section in Orthopedic Surgery); Mount Vernon Medical Society; University of Virginia Medical Society; Clinical Society of the New York Post-Graduate Medical School and Hospital; New York Microscopical Society; Alumni Association of Roosevelt Hospital.

Official News.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending January 2, 1915:

Anderson, Everett A., First Lieutenant, Medical Reserve Corps. Granted one month's leave of absence on arrival in the United States. **Bowen**, A. S., Captain, Medical Corps. Reports arrival for duty at Presidio of Monterey, Cal. **Conner**, Clarence H., Captain, Medical Corps. Relieved from further duty with Evacuation Hospital No. 1, Galveston, Texas, and ordered on expiration of leave to return to proper station at Fort Wood, New York. **Farrow**, E. J., First Lieutenant, Medical Reserve Corps. Relieved from further duty in the Southern Department, and ordered on expiration of leave to report for duty at Fort Morgan, Alabama, and then proceed to San Francisco, Cal., and take the March 5, 1915, transport to the Philippine Islands. **Fletcher**, H. Q., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Oglethorpe, Georgia, and ordered to proceed to his home; will then stand relieved from active duty in the reserve corps. **Gentry**, Ernest R., Captain, Medical Corps. On one month's leave of absence; address, Minneapolis, Kansas. **Hill**, Felix R., Captain, Medical Corps. On three months' leave of absence; address, Alexandria, Virginia. **Hughes**, Leonard S., Captain, Medical Corps. On three months' leave of absence; address, 114 Second Street, Frankfort, Ky. **Lilienthal**, Howard, First Lieutenant, Medical Reserve Corps. Resignation of commission accepted by the President, effective December 26, 1914. **Little**, William L., Major, Medical Corps. Reports departure from Fort Wadsworth, New York, on three months' leave of absence; address, in care of D. A. Grayson, Huntsville, Alabama. **Murray**, Alexander, Captain, Medical Corps. Reports arrival at Fort Howard, Maryland, for duty. **Reno**, William W., Major, Medical Corps. Reports return to duty at Fort D. A. Russell, Wyoming, from leave of absence. **Seaver**, R. P., Jr., First Lieutenant, Medical Reserve Corps. Reports arrival at Fort Rodman, Massachusetts, for duty. **Truby**, A. E., Major, Medical Corps. Relieved from further duty with Evacuation Hospital No. 1, Galveston, Texas, and ordered to report to proper station at Fort Jay, New York. **Van Dusen**, James W., Major, Medical Corps. Reports his address for four months, while on leave, as 115 Middle Avenue, Elyria, Ohio.

Births, Marriages, and Deaths.

Married.

Allen—Mitchell.—In San Francisco, Cal., on Saturday, December 19th, Dr. Warren Allen and Miss Gertrude Mitchell. **Barnett—Bogart**.—In Fort Wayne, Ind., on Tuesday, December 22d, Dr. Walter W. Barnett and Miss Irma Bogart. **Burrows—Pierce**.—In Oakland, Cal., on Sunday, December 13th, Dr. John C. N. Burrows, of Los Angeles, and Miss Virginia Pierce. **Chambers—Walker**.—In Selmer, Tenn., on Thursday, December 24th, Dr. Charles H. Chambers, of Michie, and Miss Lowell Walker. **David—Patorno**.—In New Orleans, La., on Wednesday, December 16th, Dr. J. D.

David, of Alexandria, La., and Miss Carmela Marie Patorno. **Foster—Brown**.—In Brooklyn on Tuesday, December 15th, Dr. Milton Hugh Foster and Miss Marion Brown. **McDougald—Meadows**.—In Tigrett, Tenn., on Thursday, December 24th, Dr. T. D. McDougald and Miss Velma Meadows. **Naramore—Norris**.—In Pueblo, Col., on Thursday, December 17th, Dr. Walter D. Naramore and Miss Jennie B. Norris.

Died.

Adey.—In Cohoes, N. Y., on Saturday, December 26th, Dr. John M. Adey. **Barber**.—In Watertown, Wis., on Monday, December 28th, Dr. Frank A. Barber. **Bates**.—In Chicago, Ill., on Thursday, December 24th, Dr. Morley D. Bates, aged forty-two years. **Billstein**.—In Baltimore, Md., on Sunday, December 20th, Dr. Emma Billstein, aged sixty years. **Brownell**.—In Rochester, N. Y., on Tuesday, December 22d, Dr. William G. Brownell. **Bush**.—In Colquitt, Ga., on Tuesday, December 22d, Dr. Elijah B. Bush. **Carhart**.—In San Antonio, Texas, on Monday, December 21st, Dr. John Wesley Carhart, aged eighty years. **Clarke**.—In Erie, Pa., on Saturday, December 26th, Dr. Joseph T. Clarke, aged sixty-eight years. **Cochran**.—In Tecumseh, Neb., on Thursday, December 24th, Dr. John Cochran, aged eighty-one years. **Dusenbury**.—In New York, on Wednesday, December 30th, Dr. Henry Dusenbury, aged eighty years. **Eve**.—In Nashville, Tenn., on Saturday, December 26th, Dr. Paul F. Eve. **Foust**.—In Reynoldsville, Pa., on Saturday, December 26th, Dr. John Wesley Foust, aged seventy years. **French**.—In Manchester, N. H., on Tuesday, December 22d, Dr. L. Melville French, aged sixty-five years. **Garratt**.—In Toronto, Ont., on Monday, December 21st, Dr. Alton H. Garratt, aged forty-five years. **Gildersleeve**.—In New York, on Saturday, December 26th, Dr. Frank V. B. Gildersleeve, aged seventy-three years. **Gilman**.—In Reading, Pa., on Thursday, December 17th, Dr. Roland H. Gilman, aged twenty-seven years. **Hazen**.—In Haddam, Conn., on Friday, December 25th, Dr. Miner C. Hazen, aged eighty-five years. **Hines**.—In Corsicana, Texas, on Friday, December 25th, Dr. Frank Hines, aged seventy years. **Horr**.—In Portland, Me., on Tuesday, December 22d, Dr. Jacob Lyman Horr, aged seventy-three years. **Howard**.—In Louisville, Ky., on Monday, December 14th, Dr. Samuel Livingston Howard, aged sixty-seven years. **Hudson**.—In Kalamazoo, Mich., on Friday, December 25th, Dr. C. D. Hudson, aged forty-three years. **Jackson**.—In Orrville, Ala., on Sunday, December 20th, Dr. Robert Dandridge Jackson, aged eighty-four years. **Johnson**.—In Hickory, N. C., on Thursday, December 24th, Dr. John T. Johnson, aged seventy-eight years. **Keidel**.—In Fredericksburg, Texas, on Monday, December 21st, Dr. Albert Keidel, aged sixty-three years. **Lawrence**.—In Tampa, Fla., on Thursday, December 24th, Dr. William Pitt Lawrence, aged fifty-seven years. **Lyford**.—In Dover, Me., on Sunday, December 20th, Dr. Elisha H. Lyford, aged seventy-four years. **Macgregor**.—In Louisville, Ky., on Monday, December 21st, Dr. Thomas Macgregor, aged seventy-five years. **Middleton**.—In New Hope, Pa., on Wednesday, December 30th, Dr. Thomas Smith Middleton, of Chicago, aged fifty-eight years. **Nead**.—In Albany, N. Y., on Saturday, December 26th, Dr. William N. Nead, aged fifty-five years. **O'Leary**.—In Providence, R. I., on Tuesday, December 22d, Dr. Clement Dietrich O'Leary, aged fifty years. **Pearce**.—In Kittery Depot, Me., on Tuesday, December 22d, Dr. George Loring Pearce, aged sixty years. **Ramsey**.—In Chambersburg, Pa., on Saturday, December 26th, Dr. Robert W. Ramsey, aged sixty-four years. **Smock**.—In Louisville, Ky., on Wednesday, December 16th, Dr. Benjamin W. Smock, aged fifty-four years. **Terry**.—In Chicago, Ill., on Monday, December 28th, Dr. Junius Terry, aged seventy-three years. **Tillinghast**.—In Arctic Centre, R. I., on Thursday, December 24th, Dr. Frank A. Tillinghast, aged seventy-two years. **Walton**.—In Allensville, Ky., on Friday, December 25th, Dr. I. N. Walton, aged eighty-seven years. **Watson**.—In Huntington, W. Va., on Saturday, December 26th, Dr. Morton G. Watson, aged forty-six years. **White**.—In Louisville, Ky., on Sunday, December 27th, Dr. William P. White, aged seventy-one years.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843.

VOL. CI, No. 3.

NEW YORK, SATURDAY, JANUARY 16, 1915.

WHOLE No. 1885.

Original Communications.

MODERNIZED PROCTOLOGY*

By SAMUEL GOODWIN GANT, M.D., LL.D.,

New York,

Professor, Diseases of the Colon, Rectum, and Anus, Post-Graduate Medical School and Hospital.

Before discussing recent advances in proctology, the writer will briefly review some of the more interesting historical references to rectal affections made by Hebraic, by ancient, and recent authorities.

Moses (*Deuteronomy* xxxiii, 27), the lawgiver, after mentioning the blessings that would accrue to the faithful, said: "And if thou wilt not hearken unto the voice of the Lord and obey his commandments curses shall come upon thee," of which the following is of interest here: "The Lord will smite thee with the botch of Egypt—emerods—whereof thou canst not be healed," a disease biblical commentators concede to be hemorrhoids or rectal proidentia. This so frightened the Jews that they were good ever after and escaped the affliction.

In *Samuel* 1, 6, it is related that the Philistines took the ark from Ebenezer and brought it unto Ashdod; forthwith the Lord smote the men of the cities large and small and they had emerods (hemorrhoids) in their secret parts. The ark was removed to Gath and then Ekron and the plague likewise attacked these cities. Forthwith the people sought their high priests and asked what they must do to be relieved of their afflictions and were instructed to return the ark of the Lord to the Israelites together with trespass offerings consisting of five golden images of the emerods according to the number of Lords of the Philistines, commands with which they complied and were immediately healed.

Again in *Psalm* lxxviii, 66, it says: "He smote his enemies in their hinder parts; he put them to perpetual reproach"; and it is probable that from this source arose the present method used by parents in chastening children. From the time of Samuel, three centuries after Moses, to that of the Grecian era of Hippocrates—more than a thousand years—no further reference is made in the literature to emerods or hemorrhoids.

Hippocrates held that hemorrhage characterized the disease called hemorrhoids and attributed the trouble to varices of the rectal veins, a view in which Galen and Celsus later concurred.

The great historian, Hume, in writing about King Henry V, who died in 1422, says he was seized with

a fistula which surgeons of the time had not the skill to cure. Shakespere (1606) made fistula famous in his play *All's Well that Ends Well*, which was based upon the king having a fistula that the daughter of a physician for a consideration wished to cure by a secret remedy inherited from her father. Pliny, while discussing fistula, says the colic first showed itself during the reign of Tiberius Caesar, nor did one man in Rome ever complain of this disorder until the Emperor had been attacked by it.

Louis XIV of France suffered from fistula and after having the court physician experiment with itinerant methods upon a number of his subjects similarly afflicted, without success, he was operated upon and cured by the division method which obtains today. He paid the royal surgeon, Monsieur Felix, and his assistants \$73,500, which even in these times would be considered a fairly good fee. It is said that immediately thereafter many who had fistula and some who had not, flocked to Versailles to be operated on for fistula hoping thereby to attract the attention and sympathy of the king during which time fistula became the reigning disease at court.

In olden times many considered rectal diseases incurable, and incurable affections were considered disgraceful, hence patients would not mention them to their physician, and this in part accounts for the paucity in the literature of rectal ailments extending over long periods of time. During the last three quarters of a century, especially the last three decades, proctology began to attract the attention it deserves and rapid progress has been made in the pathology, diagnosis, and treatment of anorectal affections.

It is a lamentable fact, however, that many surgeons and physicians have not kept pace with the times and continue to follow the routine methods of diagnosis and treatment practised in bygone days, which proctologists abandoned long ago.

In connection herewith we should not do the subject justice unless we included the names of such surgeons as Hippocrates, Celsus, Galen, Abbas the Arabian, Lemonier, Velpeau, Boyer, Dupuytren, Bernard, Gordon, Astruc, Brodie, Allingham, Cripps, Cooper, Busche, Smith, Salmon, Curling, Ashton, Bodenhamer, Van Buren, Whitehead, Mathews, Kelsey, Tuttle, and the modern school of proctologists, who have in turn accomplished a great deal toward the promulgation of our knowledge of diseases of the lower bowel.

Undoubtedly the marked advance in proctology made in recent years has been due mainly to American surgeons largely owing to the fact that they

*Read before the Medical Association of the Greater City of New York, November 16, 1914.

have specialized in this field of surgery and taught it in postgraduate and other schools, while abroad proctology has been kept back through general surgeons who control the clinics but pay little or no attention to anorectal ailments. In our own country many surgeons ignore this field unless they see a proctologist hovering around, when they suddenly become intensely interested in the work.

Most ancient authorities believed divine power was a necessary adjunct in the treatment of rectal diseases, but the modern profession does not, though Christian scientists lay claim to it; but do not split their fees with the Lord.

Since the Philistines were cured of hemorrhoids by presenting golden image trespass offerings, the people of some far Eastern countries have continued to make copper, silver, or golden images of afflicted parts and leave them at their shrines of worship, hoping through their agency to be healed. Many of the laity in this and other countries think by carrying an amulet that they can prevent or ward off rectal and other diseases, and we still find Ohioans carrying buckeyes or horse chestnuts, and Missourians shriveled up potatoes, which they consider a sure cure for piles. To be effective, however, the potato must be dug when the *moon is right* and carried in the left trouser pocket until it becomes as hard as stone.

The writer now invites attention to a few important points concerning modern methods of examining for and diagnosing anorectal diseases preparing the patient for operation, and carrying out the postoperative treatment.

Examination.—Some physicians still continue to base their diagnosis, usually "piles," upon the finding of blood upon the shirt tail or patient's statement that he has a pain about the rectum. There is no excuse, however, for not diagnosing anorectal affections today, because they can be directly inspected through the proctoscope and sigmoidoscope, the character of the feces can be accurately determined by microscopic and macroscopic examination and their extent and connection with neighboring organs can be defined by digital exploration and bimanual palpation. Improved diagnostic technic, largely brought about through proctologists, has also been of great assistance in clearing up the etiology and pathology of obscure colonic diseases.

Preparation of patient.—The common practice of older and many modern surgeons of purging patients and deluging their colons the night before and prior to operation, courts annoyance and infection since it insures that the field of operation will be bathed with liquid feces, which delays the work, contaminates the wound, soils the dressings, and makes the patient uncomfortable subsequently.

For fistula, hemorrhoidal, fissure, polypoidal, and other minor operations but a few moments are required to prepare the patient, which is done by having him inject a glassful of soapsuds into the rectum to bring away the solid feces, after which the mucosa is mopped over with peroxide of hydrogen or other antiseptic, a procedure which forestalls the annoyances above referred to. Where the bowel is to be amputated or resected for rectal procidentia, stricture, tuberculosis, or malignant disease, the patient is kept in the hospital for three or four

days and the gastrointestinal tract is at first thoroughly cleansed by catharsis and colonic ichthyol one per cent. irrigations, and is then tied up with an opiate or a strong astringent which insures a dry field of operation.

The parts are never shaved, except where sutures are used, and primary union is anticipated because the hair stubs cause the patient untold annoyance.

Anesthesia.—Local anesthesia is dependable and indicated in about seventy-five per cent. of all rectal operations, but is contraindicated in complicated cases where the surgeon is not aware of what is required to be done before the operation is begun.

General or spinal anesthesia is necessary for very extensive operations. Many drugs have been employed, but none has brought about more complete local anesthesia than a 0.12 per cent. eucaine solution, which anesthetizes the part in a few seconds without inducing toxic manifestations.

The writer has successfully operated upon several thousand rectal patients under eucaine or sterile water anesthesia, and in comparing them would say that the preliminary injection pain is less after the former than after the latter, but that postoperative pain and bleeding follow eucaine very much more frequently than water anesthesia.

Quinine and urea solutions take longer, but produce an anesthesia which endures during and for many hours following the operation. These solutions prevent temporary postoperative pain, but this advantage is counterbalanced by the sloughing that occasionally occurs and retarded healing of the wound which frequently follows their employment.

The writer does not employ adrenaline in combination with any local anesthetic, for it first causes contraction and later relaxation of the tissues, and he prefers an immediate hemorrhage if it is to occur, so that it can be properly controlled.

Postoperative treatment.—General surgeons are divided as to their method of controlling the bowel after rectal operations. Many purge the patient, liquefy the feces, and keep him busy and miserable through his frequent visits to the toilet, while others pursue an opposite course, administer an opiate and tie up the bowel for several days, procedures to be condemned because the former insures continuous irritation and favors infection through constant soaking of the wound with fluid feces and the latter leads to excruciating pain and tearing open of the lesion when the accumulated, dried, and nodular feces are finally evacuated. The writer keeps his patients practically on a normal diet, does not order a laxative unless the stools show a tendency toward hardness when he prescribes mineral oil, a fruit, or other laxative in small doses to soften but not liquefy the feces because then at one sitting the semi-solid fecal matter is evacuated without causing defecatory pain or traumatizing the wound.

Proctologists have recently simplified the treatment of lesions and wounds in the lower rectum and thereby greatly minimized the patient's suffering. The practice of universally cauterizing wounds no longer obtains, and they are drained and not packed, pernicious features often responsible for unhealed sores and fecal incontinence. In cleansing the wound, the swab and cotton moistened in water or an antiseptic solution has been substituted

for copious wound irrigation which leaves the rectum filled with the solution, to dribble out, soil the dressings, and make the patient miserable for hours. When healing is tardy it can be satisfactorily stimulated by leaving a gauze pledget moistened in a solution of silver nitrate six per cent., ichthylol ten per cent., or balsam of Peru twenty per cent., in the wound but where the tissues are irritable and rebel against stimulation, methylene blue ten per cent. is usually effective. Pain from topical applications can be slightly minimized by eucaine or cocaine ten per cent. applications, but in extremely sensitive individuals all suffering can be prevented by injecting a 0.12 per cent. eucaine solution beneath the lesion to be treated.

Three decades ago patients having rectal disease were compelled to choose between traveling pile doctors, who treated hemorrhoids by the carbolic injection method, and surgeons who under general anesthesia performed tedious operations and kept them in the hospital during a lengthy convalescence. Usually the sufferer chose the itinerant doctor because he could obtain a cure without being etherized or going to a hospital and quacks deserve some credit because they accomplished a percentage of cures with but little inconvenience to their patients.

Years ago, realizing that most patients preferred the itinerant to the old school surgeon, the writer began to investigate his plan of treatment, hoping to improve upon it, and met with considerable success. Twelve years ago, with the object of attracting persons afflicted with rectal disease from quacks to reliable medical men, he read a series of papers before this association, the County Medical Society, and the Academy of Medicine, in which he advocated and outlined a plan of treating rectal patients in the office or painlessly operating upon them under local anesthesia. The assertions then made were ridiculed, but the plan advocated has been successfully carried out ever since in private practice and clinical work at the Post-Graduate Hospital where several thousands of cases have been successfully treated, and the writer now, as formerly, maintains that about seventy-five per cent. of all anorectal diseases can be cured in the office or by operation performed under local anesthesia and without a lengthy postoperative treatment at the home or hospital.

For the benefit of surgeons who have not adopted the simplified treatment of minor anorectal affections, because they fear they cannot obtain so large a fee as when they operate under general anesthesia and keep the patient in the hospital for several days or weeks, the writer's experiences warrant him in saying that after both methods have been explained, the desirable patient usually chooses the former, for which he is willing to pay a larger honorarium. I operate yearly upon many doctors for minor rectal diseases, and at least nine out of every ten prefer local anesthesia and insist upon leaving the hospital within three days.

The writer will now give a partial résumé of the changes effected through modern proctology relating to individual affections of the anorectal region.

Stricture.—Phantom stenoses were extensively written about twenty years ago, but the modern proctologist knows that such so called strictures re-

sulted from enterospasm at the rectosigmoidal juncture, rectal valves, which frequently change their location, or contractions of the levator ani and sphincter muscles incident to irritation or disease.

Formerly stenoses, wherever located, were treated by forcible or gradual divulsion, but this dangerous practice has been abandoned except when the constriction is within three inches of the anus, because many deaths occurred from rupturing the bowel above the peritoneal attachment.

A former victim of the stretching process composed and left the following verse upon his physician's desk:

Let strictures on my conduct pass;
Unnoticed let them be;
A stricture somewhere else, alas!
Is more deplored by me.
In hope this blight on manhood's bloom
I yet effaced may see,
I'll hie me to my quiet room
And pass a small bougie.

The rational treatment of strictures today consists in dividing them under local anesthesia when low down, excising the affected gut when higher up, or performing colostomy in inoperable cases.

Fistula.—Physicians of bygone days held that the curing of a fistula was followed by skin eruptions or lung complications owing to the arrest of the discharge, the escape of which was necessary to keep the patient healthy, an assumption now known to be incorrect.

In some quarters, today as of old, nearly all fistulæ are thought to be tuberculous and are not operated upon because they are considered incurable or an operation would lead to consumption, yet proctologists know that tuberculous fistulæ are rare and that the patient's vitality should determine if an operation is indicated; for it is useless to divide the tract when a patient has phthisis and is so run down that the wound will not heal. On the other hand, where his general condition is good, an operation is demanded because the fistula can be cured and the sufferer stands a better chance of recovering when he has one less destructive process to contend with. Many unnecessary deaths have followed operations upon fistula patients having irritative or tuberculous lung lesions owing to their being soaked with ether and kept in the hospital for a prolonged aftertreatment. All such deaths can be avoided by doing the operation in the office under local or gas anesthesia, and permitting the patient to spend his time in the fresh air during convalescence.

Former and present day surgeons have often failed to cure fistulæ because they did not incise all sinuses or were afraid to divide the sphincter; where they succeeded, the patient has frequently suffered from fecal incontinence because of an improper operation or faulty postoperative treatment.

Proctologists prevent fecal incontinence by dividing the anal muscle at a right angle, draining instead of packing the wound, which destroys fresh granulations and forestalls perfect healing, and by trimming off the mucous membrane or skin edges so that they do not project into the wound and prevent union of the sphincter ends.

Fissure in ano.—Fissures characterized by sphincteralgia do not heal because of the irritable

anal muscle. Recent rents are sometimes healed by keeping the feces of a semisolid consistence, cleansing the rents with moistened cotton on an applicator and mild applications of silver nitrate six per cent., ichthyol ten per cent., or balsam of Peru twenty per cent.

When fissures are fully developed, and prolonged, painful sphincteric contractions follow defecation, operative measures are indicated, and the older method of cauterizing fissures with stick silver and nitric acid is to be heartily condemned because it induces excruciating pain and aggravates the trouble. For years the writer has promptly cured all fissures by splitting the anal canal under eucaine anesthesia, which puts the muscle at rest, widens the rectal outlet, relieves constipation and straining at stool, and forestalls further trouble. He has abandoned divulsion because in aggravated cases the muscle regains its tonicity before the rent is healed, and the procedure does not insure against recurrence; neither does he excise fissure, since the operation may be followed by infection and has no advantages over division of the sphincter and anal canal.

Ulcers.—Chronic ulcers of the anal canal irrespective of their cause, like fissures, do not heal unless the sphincter muscle is put at rest by divulsion, or preferably division, and they are curetted and treated with moderately strong silver nitrate, ichthyol, or balsam of Peru applications. Mopping them over with a solution is helpful, but lesions heal more quickly when medicated gauze is placed in contact with them daily.

Ulcers of the upper rectum are usually associated with catarrhal, luetic, tuberculous, entamebic, or balantidic colitis and must be treated in connection with lesions of the colon with daily colonic ichthyol, balsam of Peru, permanganate of potassium one per cent. irrigations introduced by way of the anus or through an appendicostomy or cecostomy opening. Considerably stronger solutions are indicated when diarrhea is obstinate and pus and blood appear in the stools.

The modern treatment of intestinal ulcers is superior to the older method, because it aims at healing the lesions through direct application of the remedy to the lesions instead of internal medication.

Pruritus ani.—Ball's operation for pruritus ani, which has for its object the severing of nerves from their connection with the skin, which is an elaborate procedure and leaves extensive wounds requiring weeks to heal when infection occurred, has recently been modified by Lynch and the writer so that it can now be quickly performed under local anesthesia without a lengthy convalescence.

Hemorrhoids.—Hemorrhoidal operations were considered serious in former times and are not simple from the patient's viewpoint as performed by the average surgeon today, for many continue to perform the Whitehead or other objectionable operation which should be abandoned because general anesthesia is necessary, considerable time is required, a great deal of blood is lost, postoperative suffering is severe, a lengthy hospital convalescence is essential, and annoying or serious sequelæ often follow.

Uncomplicated thrombotic hemorrhoids can be laid open, cutaneous hemorrhoids excised, and in-

ternal hemorrhoids (barring the preliminary stick of the needle) can be radically and painlessly operated upon under local anesthesia by the clamp and cautery, ligature, or modified excision procedures by the surgeon who has perfected his technique as to infiltration anesthesia and knows the tricks of bringing piles into view.

Marked improvement has also been made in the technic of operations indicated in the more serious diseases of the lower bowel, viz., complex fistula, perirectal and pelvirectal abscess, malformations of the anorectal regions, sacrococcygeal affections involving the bowel, stricture, and benign and malignant neoplasms, etc., a description of which must be omitted.

Had I the time an interesting description could also be given of appendicostomy, cecostomy, ileosigmoidostomy, colectomy, sigmoidopexy, and other procedures which in recent years have been so successfully employed in the treatment of myxorrhoea membranacea and myxorrhoea colica and the manifold colonic lesions responsible for chronic diarrhea and constipation, which in the past were unsuccessfully treated by internal medication and dieting.

In conclusion, the writer would urge surgeons to adopt modern methods of diagnosing rectal disease, simplify their office treatment, and perfect their technic so that they successfully operate upon fissures, hemorrhoids, fistule, and other minor diseases of the anorectal region without general anesthesia or other objectionable features. Should they do so, he prophesies that advertising pile doctors will be eliminated within the next decade, which would be a blessing to both laity and profession.

471 PARK AVENUE.

PREVENTION AND TREATMENT OF SUPPURATIVE OPHTHALMIA.

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New York,

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Suppurative disease of the conjunctiva has always held a prominent place among the dangerous conditions affecting the eyes and has long been recognized as one of the most frequent causes of blindness. That gonorrheal infection was the responsible agent in many of these cases was likewise widely noted and the frequency with which this infection occurred, especially among the newborn, led to a very generally accepted feeling that all cases of suppurative conjunctivitis in infants were due to this contagium.

This is a mistaken view, however, and the medical and lay mind should be disabused of this idea, since the reproach that almost universally attaches to the individual or family found acting as host to the gonococcus cannot in fairness or accuracy obtain in a very considerable percentage of these cases. The belief that ophthalmia in the newborn is always due to gonococcus infection likewise leads to serious error in management of the infant's eyes, in that the medical attendant, influenced by his belief that this organism is little likely to be present in certain of his cases, feels it almost insulting to the family to advise the use of the silver solution as

practised by Credé. The important fact that other pus organisms are very frequently the cause of this disease and that they are often present in the maternal organs of women who have never been infected with venereal disease of any kind, should be the deciding point, and if this were more widely recognized and remembered, hesitation or refusal to carry out the simple and safe ounce of prevention that Credé introduced would disappear as it should. "Safety first" should certainly govern us here.

In a pamphlet on this subject, the New York Association for the Blind gives the official census for the State of New York for 1906, as 6,200. In this list there were 1,984 cases of *preventable* blindness, and of these 620 were recorded as blindness due to ophthalmia neonatorum; that is ten per cent. of all the blind in New York owed their terrible affliction to someone's neglect, for it cannot be too often repeated that the occurrence of these cases can be reduced to a negligible percentage by the use of Credé's prophylaxis. Taking in addition the statistics furnished by numerous observers in widely scattered localities among all classes, we find that from ten to fifteen per cent. of all cases of blindness—and among children fully one fourth of all cases—are due to this *preventable cause*; surely a heavy indictment.

It would lessen somewhat the feeling of blame for this deplorable state of affairs if we could honestly feel that the profession is not responsible for these cases and that, as is often stated, the large amount of obstetrical work done by midwives and other even less qualified attendants should be regarded as the chief source of fault. This is not justifiable ground, however, although it is true that midwives are active in practice. In the report quoted above, statistics are given to show the proportion of midwives to qualified medical men attending obstetrical cases.

In Chicago in 1904, of all births eighty-six per cent. were reported by midwives. In Buffalo nearly one half of the births were attended by midwives. In New York city, in 1905, forty-two per cent., or a total of 43,834 cases, were attended by midwives, while in 1907 this grew to 52,536 cases out of a total of 110,722, about forty-eight per cent. of all reported births. Reports from investigations of the many unfortunate children affected with ophthalmia neonatorum show, nevertheless, that physicians are more often at fault in this matter than the midwives and monthly nurses.

The Massachusetts Charitable Eye and Ear Infirmary reports 116 cases of ophthalmia neonatorum in only two of which a midwife was in attendance, the other 114 being attended by physicians. In a recent report of the Committee on the Prevention of Blindness, the statement is made that of 108 cases investigated by them, sixty-two had a physician as attendant, while forty-three occurred in the practice of midwives. Three of the cases had no attendant but the family or neighbors. No attempt at prophylaxis had been made by thirty of the physicians; the number of midwives reported as taking some measure of precaution in this respect being about the same as among the doctors, twelve of the forty-three. In observing cases of ophthalmia in the newborn, I have found the gonococcus in only about fifty per cent. of the cases, and these have

nearly always been the most severe. Stephenson, in an exhaustive study of the subject, found that the Neisser infection occurred in about sixty-five per cent. of all cases. In the remaining cases the pneumococcus, the Koch bacillus, or the Klebs-Löffler was found. If the infection is gonorrheal, the disease shows itself usually before the end of the third day. Inflammation beginning later is more likely to be due to one of the other organisms.

In the infant the first sign of oncoming trouble with the eyes is usually redness and puffing of the lids. In gonorrheal cases especially, this is rapidly succeeded by discharge and increased swelling, so that at the end of the second or third day a furious inflammation has developed to the point where the hot, brawny, swollen lids can be separated with difficulty or not at all; discharge is abundant and the distress of the child is marked.

The attendant now becomes greatly alarmed and frequently adds to the danger by overactive measures of treatment. It should not be forgotten that most of these cases respond well to intelligent care, and if pains are taken to cleanse the secretion without bruising the cornea, a few days will show a lessening of the swelling and a change in the character of the secretion which promises a good result. The one danger lies in damage to the cornea, and this tissue must have careful attention to guard it from injury, and to observe the loss of substance or the gray opacity which marks the beginning of ulceration. The nurse, whether professional or untrained—for the experience and teaching of the average trained nurse is of little advantage here unless supplemented by native good sense and some special coaching—should be taught to keep the eyes clean by hourly wiping with moist, warm boric swabs of gauze or cotton, opening the lids as far as they can be separated without violence, and avoiding contact with the cornea. Between cleansings, at the beginning, iced compresses should be constantly applied to the closed lids, and the instillation of a heavy, liquid, silver, preparation like fifteen per cent. protargol or twenty-five per cent. argyrol, every three hours, is probably the most effective medication.

Cold should not be continued too long, however, as the nutrition of the corneal cells is lessened by it and a change to heat is advisable as a rule after the second twenty-four hours of treatment has been completed. In adults cold ceases to be grateful to the patient and the change to heat can thus be controlled, but for infants some other rule is necessary.

The strenuous effort formerly made thoroughly to wash out the secretion from the deeper parts of the conjunctival sac by an irrigating apparatus or even through the lumen of a hollow wire speculum, has been abandoned as harmful—the cornea being more liable to injury by this plan than from retention of a part of the discharge. If the swollen lids are too hard to afford the necessary opening for cleansing, the external canthus may be split to relieve the tension. This swelling differs from that of most conjunctival inflammations in that the lids are infiltrated with cells in place of the serous exudate accompanying less virulent infections.

In case the cornea becomes affected and ulceration develops, a new phase of the case is begun and additional measures of treatment are necessary.

Atropine sulphate, in one per cent. solution, is instilled to quiet the iris and dilate the pupil, unless in very exceptional cases where ulceration with perforation is marginal. The ulcer should be touched with carbolic acid, tincture of iodine, or the actual cautery. Warm moist compresses help the nutrition of the corneal cells. The eye should not be bandaged.

A transparent shield of mica or a glass watch crystal applied with adhesive plaster to protect the clean eye, if the infection is detected early enough to warrant the belief that it is as yet confined to one eye, may prove of value occasionally, but only occasionally, as it either fails to work as a guard or is applied too late. I have found the use of a gauze eye pad and adhesive plaster quite as effective in practice and much easier to keep in place. This applies to infants especially; in adults a shield could be used more easily.

Virulent blennorrhoea (gonorrheal infection) is decidedly more dangerous in the adult than in the newborn and this fact has caused much theorizing as to the probable measure of immunity acquired by the fetus from its infected mother. Whether it is due to some such influence or to a relative laxity of the membrane in the child compared with the adult, the fact remains that the swelling of the *bulbar conjunctiva* is usually much less marked in the infant. The less severe this chemosis, the better the outlook, a point of importance when the prognosis is being considered. If the swollen bulbar conjunctiva forms a ditch or groove about the corneal margin, infective matter lodged there is hard to remove, and the local pressure also lessens vitality and thus renders a marginal ulceration more likely. Scarification with a knife may be employed on the swollen conjunctiva. Should the cornea resist well during the early days of inflammation, the outlook is also better; for ulcers beginning late are much more amenable to treatment.

To carry out the prophylaxis as introduced by Credé, the closed lids of the newborn baby should first be wiped off carefully with a clean gauze or cotton swab, and directly after, or in any case not later than when the child is first bathed, a drop of one or even two per cent. solution of silver nitrate should be put in each eye. No harm ever follows such an instillation, and by its use we prevent dangerous infections with almost absolute certainty.

1125 BOSTON ROAD.

Electricity in Intestinal Stasis.—Frank R. Starke in the *Medical Record* for January 9, 1915, states that he has obtained and seen others obtain "splendid results" in intestinal stasis from the application of a mild, rapid sinusoidal current over the seventh and eighth dorsal vertebrae. The ptosis is markedly diminished and "one's treatment can be followed very beautifully by daily fluoroscopic studies of the stomach and intestines." He has seen them raised to a normal position in a remarkably short time, where there are no adhesions to bind them down. The effect of this treatment is lasting. The period required for emptying the ileum is distinctly shortened.

NEUROTIC DISTURBANCES AFTER ACCIDENTS IN RELATION TO WORKMAN'S COMPENSATION.

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The duty of the State to see that wage earners are insured against the disabilities incident to their occupation is shown by experience in Germany, France, and England, to be much weighed down by the number of persons who complain of nervous breakdown, traumatic neurosthenia, and similar functional incapacities alleged to be due, because they occur subsequently, to some accident at work. In Germany, indeed, seventy-five per cent. of the expenditure for the compensation of workmen has been given because of functional nervous complaints and as the compensation of workmen in that country costs more per annum than the army, the vast economic danger to the United States should be apparent.

As the question of compensation depends fundamentally upon medical opinion, it is very important to the tax payer that the knowledge recently gained by students of the functional neuroses should be placed as rapidly as possible at the disposal of the medical profession at large. The practical questions which my paper answers are as follows:

1. Whether the accident is the direct cause of the neurosis.
2. The exact part played by emotion in the nervous disturbance.
3. The relation of the patient's own notions to the consequences of his accident.
4. The derivation of the patient's notions from the opinions of others before and after the accident.
5. The psychopathogenesis of traumatic neurosis.
6. The effect of litigation upon the sequence of the disease.
7. Malingering.
8. The induction of precisely similar syndromes without trauma.
9. Rational treatment, illustrated by a case.
10. Prophylaxis.
11. Comprehensibility of the disorder, even by the laity.

In what follows, these questions are not answered in the foregoing order; but the answers should be clear when the considerations I present are digested.

PHYSICAL EFFECTS OF EMOTIONS.

Since the researches of Crile, Pavloff, and Cannon, the bodily effects of psychological disturbances can be shown, even to the demonstration of chemical changes of the bodily secretions. Pavloff changed the normal gastric flow reflex when a dog sees flesh, into an inhibition of the flow even after eating. He did this by "conditioning" this reflex by the fear induced by showing a whip, of which the dog knew the use, each time he was fed. Again, he deconditioned this same reflex, thus restoring the flow of gastric juice to flesh, in spite of the whip, by accustoming the dog to regard the whip as harm-

less. The reverse process was accomplished by ringing a bell just before feeding time, by means of which the dogs began to secrete gastric juice at the ring of the bell without any appearance of their meals. In ways like this, the secretions of the digestive glands could be modified at pleasure. Again, Cannon, by producing fear in cats, so raised the output of the adrenals that blood from the vein of these organs would arrest completely peristalsis in a frog's intestine. Criele caused death in rabbits by means of fear aroused in them by dogs.

All these experiments prove the very real physical consequences of powerful emotions. They only serve to confirm what clinical observation has long taught.

IT IS NOTIONS WHICH KEEP EMOTIONS IN MIND AND CAUSE PSYCHOSES.

But it is most important to remember that when the stimuli cease, the emotions disappear also. When "nervousness" persists in human beings after the cessation of its exciting cause, it is because in reality the exciting cause continues to act because of its maintenance through the medium of memory, for some persons can represent to themselves a situation so vividly as to make it appear almost real or, at least, obtain from it a good deal of the emotion wrought by the original. This, however, is a pure matter of ideation, for it depends entirely upon the patient's notional attitude toward the experience in question. It is with regard to situations of this kind that Shakespeare makes Hamlet say, "Nothing is either good or bad, but thinking makes it so."

In most persons "common sense" effects adaptation to reality, just as is the case in animals.

But this benign eventuality is often interfered with in human beings by the property they possess of reviving in memory the ideas which clothe situations with horror, apprehension, anxiety. Especially prone to this damaging sequence are persons whose imagination has been made rampant by the cultivation of the credulous fears of childhood. Their fear reaction to that which they do not understand is a dominant one, and they are easily beset by an idea linked with fear.¹ The commonest of the fears which result from accident or injury is that of bodily harm. It is very hard for a person of this type, when ignorant of his own structure and functions, to shake off the foreboding created by an impressive catastrophe, and it must not be forgotten that what others regard as trifling the victim may look upon as catastrophic, judged by its possible effect on him.

THE SEQUENCE.

A. 1. Prepossession by the idea of one's own disability is an inevitable consequence. 2. This leads to abstraction from and inattention to the affairs of ordinary life, which, if not trifling by comparison in the patient's mind at least, cannot claim the attention properly needed. 3. Hence ensues the well known diminution of the capacity to think, work, or take part in social life. 4. This incapacity, when the patient becomes aware of it, leads him still further to accentuate the result of his injury and thus to augment his alarm about his health. This is con-

stituted the vicious circle of hypochondria. Even a nosophobia may ensue, such as the fear of lost manhood, insanity, paralysis. Alarm at this impending disaster must, of course, be distinguished from the primary alarm due to the accident itself.

B. The next step in the drama is the reaction against the actual absence of physical signs of injury and the reassurances of medical men. This takes the form of an unconscious search by the patient for justification for his belief that he is indeed damaged. Hence arise the familiar exaggerations and falsifications of symptoms. These are made in perfect faith and honest belief; but they lead to the simulation of disease picture previously in mind or acquired in the course of the disorder.

C. It is only after the patient begins to be convinced in his heart that he is mistaken that there ensues the deliberate self deception practised in the desperate effort to preserve the respect of himself and his friends that he feels he would lose by admitting the absence of physical disorder after all.

By this mechanism may spring what Brissaud called *sinistrosis* or the desperate determination in sickness against all conviction of error. *Even a favorable settlement of a lawsuit may not remove this attitude.* Only skillful psychotherapy will do so; and in severe cases considerable time and much effort may be required at that. The following is a case in point:

CASE I. *Hysterical hemiplegia complicating various bodily disorders.*—A woman, aged forty-one years, was seen with Dr. John Nichols because of severe neuralgia of the left side of the face, left hemiparesis, peculiar dreamlike crises, hysteria, and nervous breakdown. An osteomyelitis had been present since infancy. She was supposed to have had gallstones ten years before, and since then had been constipated, until relieved by agar prescribed by Doctor Nichols. The neuralgia had occurred from a chill at a funeral three years before. It had lately been accompanied by headache at the left side, during which the face burned, and actually felt hotter to the touch. Emesis did not occur, and there was no family history of migraine. Six months before, she had fallen on her right hand in an elevator, and next day the left arm was paralyzed. Improvement took place after a verdict against the owner of the elevator and direct suggestion. But she constantly wore a leg brace and walked with great difficulty. She was taking many narcotics and possibly a good deal of alcohol. The dreamlike attacks were those typical of toxicosis, and I believe were accounted for by the narcotics in which she had indulged. She was tearful, restless, frightened, and at times querulous from the same cause.

Physical examination showed deep reflexes exaggerated, the right patellar more than the left. There was a false clonus when the left ankle joint was forcibly flexed.

There was no tremor, and the diadochokinesis was good; there was no other deficiency, except an apparent incapacity of the left arm and leg. In reality, however, the resistance of these was quite good when she was unaware that I was testing it; and the unconscious movements she made in bed were performed without any deficiency. I was able to produce a slight improvement in the volitional movements on the left.

At first there appeared to be a loss to coolness, touch, and vibration stimuli on the left leg; but it was very easy to suggest that she was mistaken; and she then readily both felt and localized these stimuli, especially the left. I could not demonstrate the falsity of her belief in this respect. There was hyperesthesia to pain, and even sometimes to touch, over the leg, thigh, and face; and she declared

¹By a false clonus is meant a series of contractions of the sural muscles, produced by the will, and not due to the successive stimuli by which a true clonus stretches the muscles during recoil of the joint. The false clonus is detected by the irregularity in extent and duration of the individual movements and by the great difference of interval between the several movements. Without a kymographic record, the difference is hard to detect unless one is experienced.

¹Fear in Children and Its Cure, *Archives of Pediatrics*, December, 1914. Psychoprophylaxis in Children, *Journal of Abnormal Psychology*, 1909.

that the neuralgic points of Valleix were still more sensitive. The visual field was apparently restricted toward the left, at the beginning of the examination; but a very little skill soon showed that there was no restriction whatever of the form field. The red field seemed limited bilaterally. The only other abnormality found was a deformity of the turbinate bone.

Although there was some physical disability from the old osteomyelitis, the condition of the reflexes and the absence of marked muscular atrophy showed that her incapacity was not due to organic disease of the nervous system, which would have caused marked reflex differences on one side of the body with spastic phenomena and extensor plantar response, or would have produced a marked muscular atrophy, with or without loss of sensibility quite different in type from that found. Besides, the hemiparesis ceased while the patient's attention was distracted, and could be modified by suggestion.

It was therefore *hysterical*; and it was only increased by the leg brace, which fortified the patient's faulty notion regarding her leg.

The so called hysterical mental state, however, had a quite different source, being in reality toxic, and therefore amenable to psychotherapy. The prognosis of this, however, was quite good if the cause was suppressed.

Treatment.—1. Cessation of the taking of drugs, physical measures being used to promote rest and sleep and improve nutrition, and a bland diet taken. 2. The leg brace to be left off. 3. Reeducation of the sensibility of the face and leg. 4. Finally, explanation of the nature and genesis of the condition and reeducation of the patient to a better planning of the somewhat strenuous business life which she led. These measures Doctor Nichols carried out; and the sensibility recovered, the paralysis ceased, the dream states no longer occurred, and the patient returned to work a different woman, until alcohol some months later produced another breakdown of which I have not the details.

CASE II. That the indemnity itself is not the actual cause of the recovery of the genuine hysterics is illustrated very clearly by the Pohlitz case. This man remained without the use of his limbs over seven years after receiving seventeen thousand dollars from the Washington Street Car Co. He thoroughly believed himself incapacitated until "persuaded" to walk with much difficulty by his wife, the day after she found that he had reached the corner of the room from the bed in consequence of the alarm created by the falling upon them one night of the plaster from the roof.

TRAUMA ITSELF IS NOT PSYCHOPATHOGENIC.

In itself neither trauma nor emotion can produce sinistrosis or traumatic hysteria. The real factor is the ideational complex in the patient's mind. It is the idea he has of the consequence of his accident and not the emotion of the accident itself which maintains his abnormality. The psychological mechanism at work may be termed "suggestion." Its modification is the same whether there is an accident or not. Illustrations may be found in the following cases:

CASE III. A chief clerk, aged fifty-four years, always rather peculiar in disposition, was seen with Doctor Clayton because of hemiplegia, which occurred suddenly, apparently in his sleep one night. He had no pain, but was numb all over; could not get up properly, stuttered, lisped; his tongue seemed tied. At 11 a. m., Doctor Clayton found the right eye wider than the left (equal next day), and that all movements could be made, but that the right grip was weaker than the left. He thought it hysterical on account of the history. As in a few days he became completely hemiplegic, Doctor Clayton being doubtful, I then saw him.

Deep reflexes were equal and not exaggerated, but volitional contraction suppressed the right gluteal reflex. The right toe extended on stroking the sole. This, however, was done voluntarily. We shall discuss this later.

The right arm was quite motionless, but moved when he yawned; the leg moved with difficulty; the contralateral synergic responses were equal, however. He stuttered in speaking. Sensibility was normal. Psychological examination showed the pathogenesis. He was particular to old maidishness, and dyspeptic all his life. He was subject to petty

worries and easily annoyed. Lately, he had feared losing his position to a pushing substitute, and little family" worries had occurred. A son had studied medicine, and he himself had often gone to the lectures, by which knowledge he understood the mechanism of his affection to be "a failure of the will to connect with what moves the arm." He defied me to make him move the arm by suggestion.

Treatment. Entirely acquiescing, I explained that the fault was not in the connection, but in the controller himself, and admitted my inability to make his arm move, but declared that he could by practice. Having disarmed him thus, I easily inaugurated movements on the spot by suggestion and he flexed and rotated the forearm and moved the fingers. Then his wife and doctor were called and shown the improvement. An encouraging prognosis was given, and a week's horseback tour advised. The iron was not struck while hot, so he did not recover for some time; but he is now well.

CASE IV. *Hysterical prurigo*.—A girl, aged nine years, came to the dispensary on account of itching of the right side of the face. Her frequent scratching had kept up a pityriasis. This had begun two years before, after her father had for some weeks suffered much from furuncle when he had itched all over, scratched much, and spoken of it a great deal. He still did so when he ate pork, thinking that it made him itch. The little girl had only one boil on the right heel, and this she feared to scratch. It did not appear that the child's face had really been diseased; but I believed that the eruption was kept up by a morbid impulse to scratch, and therefore prescribed sulphur ointment with the object of inculcating belief, and impressed upon mother and child the need of never touching the face, and assured them that the itching would totally disappear in two weeks, which prediction was verified by the result.

CASE V. *Hysterical typhilitis after appendicectomy*.—A girl, aged twenty years, was seen with Doctor Watkins and Doctor Staveland because of recurrences of right iliac pain with nausea and vomiting, but with normal temperature and pulse since three months. Two months before, the appendix had been removed for similar symptoms, and found little changed, though containing a concretion of lime. At the time, the ovaries and gallbladder were found normal. The pains recurred every few days, lasted some hours, and were relieved by morphine or the Scotch douche.

Examination showed only a psychogenic hyperesthesia in the right iliac fossa, controllable by indirect suggestion. Some sacral atonia, a slight retroversion, and intestinal sand could not explain a manifestly psychogenic tenderness. After being convinced that a determination to conquer a longing for the comfort and anodynes which sickness had brought would cure her, she went back to her home and remained well.

LITIGATION NOT ITSELF THE CAUSE.

It has been stated that a lawsuit is necessary to create traumatic hysteria. That this is not so is shown by the following case, where the idea of entire disability was created by the presence of a partial disability due to an accident and was very simply removed by psychotherapy without question of indemnity:

CASE VI. *Incapacitating hysteria engrafted upon hematomyelia of the right hand and arm segments*.—A man, aged twenty years, apprenticed mechanic since the age of sixteen years, was seen with Doctor Conklin and Dr. Lewis Taylor in June, 1911. Two years before, he had dived to the bottom of a creek. The concussion which ensued kept him in bed with severe headache and unable to move for three days. Urinary incontinence lasted one day. He vomited at first. For nearly a year he was unable to walk without severe staggering; his speech had been difficult, and still remained slow. He complained also of great sleepiness and difficulty in holding his water; so that he was quite unable to go to work, especially as the right hand was partly wasted and paralyzed, and he feared that what he knew to be an organic nervous disease might be aggravated by exertion. There was loss of sexual power. The boy was normal with the exception of the following abnormalities: The right plantar reflex was absent, but there was inversion of the foot on stroking the sole. The right triiceps was diminished. There was great atrophy and

weakness of the extensors of the third, fourth, and fifth digits of the right hand to an extreme degree. The opposition of the thumb was now quite weak. The grasp of the hand and flexion of the wrist were relatively stronger. The abduction of the wrist was strong; the adduction of the fingers was quite weak. There was no other distinguishable weakness of the forearm.

He complained of a perpetual tingling down the right leg, which occurred with each beat of the heart, night and day, except during sleep. But there was no difference on the two sides in the perception of coolness and warmth, and the sense of attitudes was now normal, although he stated that for two months he was unable to recognize the position of his limbs. I could not satisfy myself that he really felt less intensely, as he alleged, stimuli to the right leg by the tuning fork and the point of a pin, so that this hypesthesia might have been suggested during my examination. A suspicion of its psychogenic nature was corroborated when I found that, although he declared he would sway when he closed his eyes, he did not actually do so when his balance was deprived of the assistance of his vision while I pretended to be examining the eyes.

Diagnosis and prognosis. The abnormalities of the reflexes, motility and subjective sensibility, as well as the slow speech and difficult retention, were due to organic changes, very probably hematolytic, resulting from the blow on the head in diving. They were not amenable to treatment, but they were by no means incapacitating; for even the grasp of the right hand was fair and the right thumb could be apposed so that he could handle a tool. The prognosis as to efficiency was therefore good.

Treatment. He was accordingly informed of the organic nature of part of his difficulty; he was also told that the disease was not progressive, and would not be exaggerated by work, which would, on the contrary, improve him in every way, and very likely rid him of his heavy feelings. I recommended him, therefore, to begin work, and behave as if he was quite well. This he did, with the result that he continued at work, and was in excellent condition six months later.

No commentary should be needed to show that this boy's idleness proceeded, not from actual disability, but from the idea which he and his people held regarding his condition. He was the victim of a false fixed idea that he was gravely ill, and this suggestion was the cause of his incapacity when I saw him, while the organic destruction of the central nervous system had at that time no direct significance in that respect.

MALINGERING.

Finally, simulation must be considered. Two striking illustrations follow:

CASE VII. Simulation of dementia præcox and anesthesia.—The patient was a young negro accused of murdering his wife, seen in consultation with Doctor Shute, the jail physician, on account of a suspicion that his was a case of dementia præcox. I was informed that some physicians believed him hysterical, and that others thought he was suffering from syphilis of the nervous system. On examination, I found a well developed man who showed no abnormalities of motility. The knee jerk was made very violently (the explanation of this will appear), but there was no corresponding excessive reaction on tapping the tendo Achillis, nor was there extension of the great toe when the sole was stroked. The abdominal, cremasteric, conjunctival, and pupillary reflexes were present and equal.

He was very unwilling to close his eyes for my examination of the sensibility, and, when touched by wool on the right side, opened them and jumped in alarm. He stated that he could not feel at all on the left side, but all his responses were made after much delay, and he was evidently suspicious and alarmed. The sense of attitudes was not lost; for though he pretended not to know in what position I had placed his left foot, he imitated that position when asked to do so. He declared that he could not feel the increase as I gradually augmented to fifteen kgm. my pressure on the left shoulder. As he was unsupported and in the upright position, he must have been conscious, at least, of the muscles of the opposite side acting to main-

tain this attitude. Of course, even had the impulses from the muscles on the affected side been interrupted, as he pretended, the sound side would have detected the pressure; but he persistently declared that he felt nothing at all.

The diagnosis of simulation was clinched by the fact that though he pretended not to feel a pinprick anywhere on the left side, yet, when I distracted his attention by making him examine some pictures I had brought to elucidate his mental state, and jabbed him unexpectedly with a pin in the lower part of the left chest, he not only started violently, but he placed his hand over the spot, and first looked down and then at me. As I gave no sign, he slowly returned his eyes to the examination of the picture. The visual fields were not contracted.

As to his mental state, though it was apparently very dull, the stupidity he affected did not concord with the results of the tests I made. When I asked him how long he had been in jail, he pretended with a vague stare not to know, eventually saying, "Two—three years." (He had only been a few weeks.) By adopting a matter-of-fact manner and ignoring his expectations of meeting with the naive credulity to which he had evidently been accustomed, I succeeded in learning that he had been a footman to a gentleman in the government service, who lived in a hotel, and who kept a white maid and a colored coachman who lived out. He did not admit, however, the remembrance of his name. His intelligence was thus of too low a grade even to pretend a tenable amnesia. I then showed him the pictures, in which at first he pretended not to recognize a tree, but later he saw the absurdity of his first statement that a man was holding in his hand a stick, when in reality it was a hose from which water was issuing; for he not only saw the absurdity when told, but detected the break in the hose. (My experience shows that not every individual, even of good intelligence, detects this discrepancy.) In another case he recognized that a horse pulling a sled up hill was not properly hitched, the chain not being taut. (This discrepancy is rarely detected by patients.) He thus showed a power of perception utterly at variance with the stupidity he alleged to me and to previous observers. Some weeks later, he was said to have contraction of visual fields. On examination he again alleged hemianesthesia; but I again tripped him up on one occasion, although several methods failed on account of previous experiences. He ultimately confessed, however, to feeling pinches on the back of his hand. He related various events to me quite clearly and accurately. Being given the benefit of a doubt, which should not have existed, he was sent to the asylum; and I am informed that he showed no somatic symptoms, and merely the mental state belonging to a low type of intelligence without any psychosis.

I should add that the hemianesthesia presented the character of the hysterical type, that is to say, it was absolute, affected all segments equally, and reached the midline exactly. Whether its source was in medical suggestion or simple simulation could not be ascertained; for, of course, the patient did not confess; and the numerous medical examinations which had been made without the precautions upon which Babinski has insisted afford a strong presumption of suggestion of medical origin, for it is the commonest source of anesthesia of this type. The exaggeration of the knee jerks was a voluntary one, and can be easily simulated, as anyone can prove by trying it. This mode of reaction can be detected by an experienced observer. It probably was the result of the interest shown in it at the first examination.

The case was clearly, then, one of simulation from desire to avoid punishment for the crime he had committed. The form in which the symptoms manifested themselves was determined by the faulty technic in previous medical examinations. The fault was similar to that stigmatized by Soury when he criticised Rainaldi's localization of cortical centres in conformity with the symptoms manifested when he tapped different parts of the craniums of patients during hypnosis: "The symptoms corresponded with the textbooks which the different experimenters had read." What the observers had described was the result of their own suggestion.

And so it was in this case, both for the hemi-

anesthesia and the knee jerk. Moreover, by his mental reaction, the patient did his best to conform to the dementia syndrome which his interlocutors had in mind. But when a precise and rigorous method of examination had been pursued without *parti pris*, a very different picture presented itself, that of deliberate simulations in an ignorant person of low intelligence.

CASE VIII. *Simulated quadrantic hemianopsia*.—An ex-sailor, aged forty-one years, was referred by Doctor Henning, to whom he had been sent by Doctor Burch because of inability to perform more than light work. He had a small pension and had applied for an increase. He declared that he was believed epileptic in the navy, and that since the accident of falling out of his hammock while asleep fifteen years ago, after which he was totally blind, remembering nothing, life seemed a dream; it was hard to understand people; his memory was poor and he was very nervous on the street, not being able to see out of one side of the eye, and bumping into objects. As the hemiopic person always carries his head turned toward the side of the sound retina and has to turn his head still farther to see objects on that side of him, I suspected this man at once, for there was no deviation of the head. Accordingly I nonchalantly asked him to move a dark screen so that he could be hidden while stripping. He did this in a dark corner without any head movement to indicate loss of vision in the periphery of either visual field. But on approaching the field with test objects in the usual way, he declared that objects were seen only as they impinged upon the right upper retinal quadrant, i. e., below and to the left. Since, to his apparent good faith, there was added a loss of the right Achilles reflex and some inequality of others, along with an uncertainty of the sensibility to the diapason on the malleoli, it was necessary to confirm either the patient's opinion that his visual field was restricted or my own that it was not. As the pupils reacted normally and the optic papilla was not diseased, an anterior lesion was excluded. The diagnosis of simulation was clinched by his winking when I placed before the right field of the right eye the percussion hammer with which I was ostensibly testing the orbicular response to a tap on the facial nerve. This took place, both from above and below, on the left and right side, and conclusively proved that he actually perceived objects with all parts of the visual field.

It is hardly conceivable that such a syndrome could have occurred by suggestion in medical examination, and I believe that it was intentional. This was proved when he visited me for the second time, after I had told his doctors what I had found; for on presenting the hammer in the same manner as before, no wink occurred, the patient staring fixedly before him and declaring that he saw nothing except when the hammer was below to the left. It was easy to show, however, that he was feigning, by holding opposite the midhorizontal plane of the eyeball, just within the visual field, two strips of color. He saw only the one color, and, when they were reversed, similarly. But he saw the color which impinged upon the blind field, and not that upon the field which saw. Hence, his feigning was deliberate, as he had suppressed the reaction by which it had been formerly detected, and yet still showed, unknown to himself, that his blind field saw.

My estimate of this man's status was later confirmed when he became a ringleader in a rebellion in the hospital for the insane to which he was sent and in which he remained about a year. He eventually reached his proper destination, the penitentiary, where he should have been sent at once, had my diagnosis been acted upon.

CASE IX. A railroad brakeman was thrown through the giving way of a stirrup while his train was traveling at the rate of about ten miles an hour. He fell on the small of his back against a bank of earth, rolled over two or three times, and lost consciousness for over half an hour. After he had crawled about half a mile he was found. He felt sick all over, and brought up blood, which also came from the bladder and bowels—only that day, however. After reaching his home town he was assisted to his house, one

and a quarter mile away. He did not sleep that night, but rested the next morning. In the afternoon he became restless, and sticking pains occurred in the back; these lasted several days. He was up and about with a crutch in fourteen days, but shortly afterward he lost the use of his legs, being forced to move them with his hands, but he walked about on crutches, though he felt faint after progressing two or three blocks. On account of anxiety and want of means, he soon after went to live with his mother, his wife going to her father. When questioned, he replied, "Well, yes, I missed her"; but he stated that he was too preoccupied with his health to care much. About three months later he was able to hobble with a stick only, but his power to do so varied from day to day.

He said he felt a buzzing and a severe pain in the head, as well as in the back; these did not begin until one month after the injury. He worried much over his position and circumstances, the dependence of his wife, and the idea that he was unable to help her and his mother, who was an invalid with a younger boy to take care of (he wept while relating this). He never worried before his accident, but now he could not help it; for though he was owed \$225 by an accident insurance company, they would not pay him anything. He did not know what to think about his health; for though the railroad doctor upon seeing him after the accident, declared he would soon recover and be able to work, he had lost over twenty pounds in weight, had become very weak, had sore throat, a capricious appetite, and sallow skin, and wept nearly every day. Moreover, about ten days after the injury, two other doctors, called in by his family, each said independently of the other, that he had a congestion of the spine, which, though probably temporary, might last a lifetime. He had a very severe "fainting spell" one day after a cold; but when interrogated, he confessed to having eaten a large meal of sweet milk and coleslaw, and that this had been the only occasion since the accident upon which he had actually vomited, though he had often had a dull, sick feeling when overheated. He wished he had never seen a railroad, "meaning nothing detrimental to anyone but myself."

He had employed attorneys who were bringing a claim against the company; he had asked for \$2,500 and employment, and had received much sympathy from his friends. When asked his object in this, he replied: "I will be frank with you and all. I was looking forward to promotion. It was no fault of mine that I was injured; if it had been, I would have said nothing. I merely ask for a sum of money and a job I could do. I could get around and do a job I could do, but I would never run railroad again; for in catching a box local, it means heavy weights all day, and I cannot gain promotion except through this." He thought he might do office work, though he dreaded it; for outdoor work suited him better than the confinement of bookkeeping; besides, a good brakeman could make a hundred dollars a month.

Upon examination, I found the tendon reflexes equal on the two sides and neither exaggerated nor unduly feeble. The cutaneous reflexes were all unusually active, with the exception of the plantar, in which, however, the toes distinctly flexed upon several occasions, until inhibited volitionally. When I distracted his attention, flexion again occurred.

A pinprick on the lower limbs was called a punch; cold steel was called warm, and the diapason was felt only when in full vibration. Cotton wool was not felt in front as high as the groin, and behind as high as the iliac crest on the right side, at first; but after the left side had been examined and found insensitive only as far as the gluteal fold, he confessed to feeling the wool on the right buttock also. When asked to say when he did not feel the wool, he said "No" the first seven times he was touched on various parts of the lower limbs, later ceasing to reply. The gluteal esthetic boundary varied by about two inches at different examinations. In the lumbar region, he was bilaterally hyperesthetic in a two inch zone, shading off below and sometimes extending on to the buttocks. Posteriorly, the upper border of the zone corresponded to D.12 and L.1; laterally to D.10-11, and anteriorly to D.8-9.

The motor power was good. When he attempted to use the legs alone, he strongly tightened up the antagonistic muscles; but when his attention was diverted he could maintain powerful extension at the knee, even on the left side, though he declared himself weak there from an old

dog bite. Babinski's combined flexion, and Hoover's and Zenner's tests were all negative. The pupils were equally dilated, and responded promptly and vigorously to light and accommodation, but no pain reflex could be elicited. There was no loss of memory or other intellectual defect, although the affectivity was perturbed as described.

It should be evident that the incapacity of this man arose from the fixed idea, very probably inculcated after the accident by his friends, although contributed to largely by the common belief of railroad employees, that an accident can induce serious nervous disease. The doubtful prognosis of the doctors, evidently unskilled in neurological diagnosis, strongly fortified the man's belief and consequent anxiety. The anesthesia, produced by previous medical examinations, might have deceived an inexperienced observer; but the wool test, which had not previously been performed as I performed it, quickly revealed not only an "uneducated" line of demarcation, but demonstrated that the man did feel by the very fact that he said he did not. Of course, even had I not succeeded in thus demonstrating the incongruity of the syndrome with the neuropathology of the spinal cord, the complete conservation of all the reflexes was sufficient to show that the anesthesia did not arise from disease of the spinal cord.

The diagnosis, then, was *hysteria*, the psychic elements of which were clearly revealed in the foregoing history. The prognosis given was favorable; but I first explained to the patient and doctor² separately the real genesis of the disorder, showing the former the effects of worry and anxiety upon bodily nutrition, and the role of ideas over bodily activity.

The treatment³ I recommended was the reestablishment of good nutrition, regular exercise, removal of grief and worry by the assurance of a reasonable compensation for the anxiety and loss he had suffered (for though his ideas were erroneous, and he was in one sense of the word a simulator, he was so unconsciously, and because of the environmental beliefs he had acquired), and the declaration that by following my treatment he would be capable of moderate work in a few weeks, and in a short time would be entirely restored to health. Being asked for a certificate, I gave the following to both patient and doctor: "This is to certify that I find Mr. V. to be suffering from a condition of incapacity for free walking or mental or physical work from the effects of a fall from a brake car (as I am informed). This state is induced, as a result of the aforesaid accident, by the worry, anxiety, and loss of means directly caused thereby. I believe that by appropriate treatment he could be restored to a certain extent within one month, and that within three months he could be fully capable of pursuing any laborious vocation he chose. He is at present in too low a state, however, to be capable of long, continuous labor, even though the incapacity of his limbs was immediately removed. There is, and has been, no disease of the spinal cord or peripheral nerves at play in the induction of any of the symp-

toms which I find. The erroneous belief that there has been such an injury powerfully contributes to the anxiety which maintains his present state."

As to the outcome, a letter from the doctor a few months later stated, in reply to my query, "We compensated V. by a sum of six hundred dollars, and he went back to work on time just as you predicted." *Naturam morborum curationes ostendunt.*

The replacement of the morbid feeling tone by another cannot be direct, but must be accomplished by replacement of the causative idea by another, and this is what, indeed, the psychotherapist does in the gastric neurosis. But in traumatic cases the litigious element prevents this; for the patient is suspicious of everyone who does not accede at once to his fixed idea that he is incapacitated; and the medical men as a whole are not noted for the psychological finesse required in approaching such cases. Hence, access, even if gained, is quickly lost, except by the medical men whose belief accords with that of the patient; and these, believing as falsely as he, are as helpless to cure him.

It must be remembered, too, that mere affirmation may prove a very poor appeal; for a cold, intellectual acceptance is not enough to change an attitude of mood which has been assumed for any considerable time. Intellectual acceptance must entrain immediate action, whether emotional or not; for the whole bearing of the patient's mood must be orientated toward a desired idea—that of disappearance of the hurtful idea—emotion complex. Thus, I obtained the active consent of my patient, and he was invited to dine with his doctor that night, made to feel optimistic, and then taken home and the settlement clinched at once.

It is clear that the return of this man's functional capacity was the result of the enlightenment and persuasion he received during our interview, seconded by his physician, who saw that immediate action followed an intellectual conviction which might not have been maintained against the countersuggestions he would have again received in the environment of invalidism which had grown up around him. It must be remembered that patients with a fixed idea become aboulie where other matters are concerned. Thus, Brissaud remarked of a patient who went into a fit when they gently attempted to extend the contracture of a limb which had lasted five years since the railway accident: "This contracture is his life." Misoneism, the impossibility of adaptation to unusual conditions, is common enough, and its intensity is proportional to the length of time during which the mental habit has persisted, as well as to the affection, so to speak, with which one's habit or defect has been cherished and the age at which it has been acquired. In such persons new conviction soon becomes inert if allowed to sleep.⁴

It has been objected that the ideas here presented are too complex for the comprehension of judge and counsel, much less of juries. But that they are essentially simple and can reach the intelligence of

²Dr. S. S. Gale, of Roanoke, Va., for the chief surgeon of the Norfolk and Western Railway.

³For details regarding the principles of the treatment of hysteria, see author's paper to Neurological Section, American Medical Association, which appeared in *Journal A. M. A.*, December 21, 1912. References are there given to other writings, among which *The Treatment of Ten Cases Without Minute Psychoanalysis*, is most pertinent to the present question. See *Washington Medical Annals*, January, 1912; *Post Graduate*, June, 1912.

⁴The psychological processes which develop traumatic hysteria are analysed by the author in *Journal of Abnormal Psychology*, June, 1910. It is necessary to understand these fundamentals before proceeding to the removal of the condition in a given case. To attempt it without this knowledge corresponds to entering an abdomen without an understanding of surgical principles and technique. The issue will not be favorable to the patient, and future intervention will be handicapped. See also *American Journal of the Medical Sciences*, October, 1914.

the average man quite rapidly, seems to follow from the readiness with which the jury grasped them in the case of Hill versus Chicago and Milwaukee and St. Paul Railway, Redwing, 1911.⁶ Here, although counsel for the defense was unwilling to broach the psychopathological explanation of the plaintiff's apparent disability, yet on its being insisted upon by the cross examining counsel, the jury readily understood the account given by the neurological expert, as is shown by their rejection of the plaintiff's demand of \$15,000 indemnity for alleged incapacity at the time of the trial, instead of which they allowed him merely \$1,500 for the actual injuries suffered at the time of the accident and the loss of time and gaining power directly traceable thereto.

It is very important that the laity in general should be aware of the mechanism of traumatic hysteria; and to this end Mr. Addington Bruce, in the *Outlook* for May 19, 1914, gave a most luminous account of the subject, which any intelligent layman should readily understand.⁷

1705 N STREET.

THE PRACTICAL PREVENTION OF TUBERCULOSIS.

BY MARY E. LAPHAM, M. D.,
Highlands, N. C.

It is every day becoming more evident that by the time our children reach maturity they are all infected with tubercle bacilli and that, therefore, the attempt to protect our people against tuberculosis should not so much be directed against preventing an infection already and inevitably acquired, as toward protecting them from the consequences of what has already occurred and can in no way be avoided.

When we realize that all of us are bearers of tubercle bacilli and that their residence in the human body is part of the phenomenon of life, we understand why it is that tubercle bacilli are so harmless and so fatal. We see that the great losses from tuberculous diseases are due to their greatest characteristic, which is extraordinary lack of manifestations when these diseases are initiated. Ninety-five per cent. of our total population remain perfectly unaffected and only from two to five per cent. are in danger from these bacilli, but the fact that every individual is a possible candidate, makes it possible for these organisms to create a death rate far in excess of all other bacteria. The harmlessness is shown by the ability of ninety-five per cent. to resist; the danger lies in the universality of the infections, especially in the fact that when the change from harmless to dangerous residents occurs, no sign is given and no one knows when this or that individual has fallen a victim to disaster.

The terrible death rate from tuberculosis is not due to the presence of the infection alone, but to the impossibility of knowing when the infection becomes dangerous. When other agents of infec-

tion induce disease, we are sufficiently informed by clinical signs, but when tubercle bacilli assume pathogenic properties, no sign is given and there is no way of knowing that the beginning of the end has come. This infinitely slight beginning escapes detection until enough harm has been done to occasion clinical manifestations; thus this universal infection exposes all our people to a universal danger which may or may not develop in any individual at any time. Allport says that there are twenty million school children in the United States and that one million have tuberculosis. In the present state of our knowledge, it is useless to attempt to protect our children against this wholesale infection because we do not know when nor how nor why it is acquired. All that we know is that tubercle bacilli are universally present within the bodies of our children, and that any day, at any time, from the cradle to the grave, these bacilli may assume pathogenic properties, initiate tuberculous processes, and kill, not by the violence, but by the insidiousness of the attack and its fiendish latency. To know whether tubercle bacilli have or have not become dangerous to each child and adult constitutes the safest protection against tuberculosis. Our greatest safety lies in the detection of tuberculous processes before they do us harm, while yet they may be easily and inexpensively and permanently overcome; our greatest danger lies in failure to discover these beginnings until enough harm has been done to force recognition.

It is doubtful if we can ever know when the momentous change, from harmless parasites to insidious foes, occurs. This is far too subtle and too minute in its effects for the best trained eye and ear to detect; even our instruments of precision are inadequate. The problem of protection against tuberculosis is how to reveal the danger at the earliest possible moment, just as soon as enough of the lung has been affected to enable us to see and hear and feel the danger. Out of every hundred healthy people, one or two will be unable to restrain their tubercle bacilli from assuming pathogenic properties. Out of the total population of the United States, one or two per cent. will manifest this failure by becoming tuberculous. "Many are called but few are chosen." All are infected, one or two per cent. will die; which are the ones? The prevention of tuberculosis consists in saving this one or two per cent. by detecting the danger at the very start, which detection can be best accomplished by regular, periodical examinations of our children and adults, made by competent authorities.

Why do these failures occur? Why, when all children are infected, should one have tuberculosis and another not? Why indeed? This we do not know of tuberculosis any more than of any other bacillary disease. Drinking the same water, living under precisely the same hygienic conditions, why does one child have typhoid and another not? This is true of all bacillary infections, even cholera and plague. In all kinds of epidemics, some escape and some die; why?

Vaughan and Novy, years ago, when the study of bacteria was new, showed the effects of fatigue, of lack of food, of bad surroundings, upon the natural resistance of animals to the agents of infec-

⁶This case will be published in detail later.

⁷See also author's former articles on Occupation Neuroses, *Journal of Neurology and Psychobiology*, 1912; New York Medical Journal, 1912; on Traumatic Neuroses, *Monthly, Chicago*, 1908, 1911; *Medical Record*, 1909; *Journal of Abnormal Psychology*, 1910; *International Journal of Surgery*, 1909; *Therapeutics*, *Illinois Medical Journal*, October, 1911, etc.

tious diseases. Mice exhausted by treadmills succumbed, while vigorous mice remained unharmed. Any factor lowering resistance, predisposes to tuberculosis just as to other infections. Given the infection and the child, anything altering the status of the child in such a way as to favor the assumption of pathogenic properties by the tubercle bacilli constantly resident in its body, will predispose this child to tuberculosis, not at one time only, but always. Thus there is resident in every one of us, the perpetual possibility that at any moment our tubercle bacilli may initiate tuberculous processes infinitely minute in extent, infinitely beyond our power to discover, but infinitely dangerous unless overcome.

Nägeli has shown how frequently these processes begin and are arrested. Autopsies show how often this danger develops and is overcome, and so we have learned that tuberculosis is not an infection acquired at any definite moment from a specific source, but rather a life long balance between the potential powers of tubercle bacilli constantly resident and the status of the individual. Tuberculosis is not a disease contracted like other infections, but the development of dangers that cannot possibly be avoided or prevented because there is no way of preventing the infection of the children. Given the infection, how shall we protect against it?

We know that the maintenance of resistance is greatly aided by sanitary surroundings and hygienic living. Simply cleaning up a city markedly reduces its death rate. Better food, better housing, and better living are the most potent and most sensible antidotes to this social evil. The most enlightened methods are those employed in the tuberculosis homes of New York city, which are far superior in their results to the sanatoriums of the city. To overcome faults in living is to overcome tuberculosis to a great extent, but not entirely. Every worker in a sanatorium for patients from the better classes knows full well that ideal conditions of existence do not furnish absolute protection; that some subtle change in the dweller in the palace on the hill may render him as easy a mark as the man in the hovel down below. It is an every day experience to find that the best of food, of sanitary surroundings, and hygienic living, do not suffice. Even with no trace of heredity or exposure, and with absolutely no premonitory warnings, no suggestion of the impending disaster, a strong, capable man falls headlong from his successful activity, knocked down as if by a blow; and why? He has always been a successful and perfectly well man. He has been a good husband and father and lived an exceedingly rational life, and never known a day's illness until some trifling ailment, some "indigestion," etc., causes him to consult a physician. As a matter of routine, the regular examinations are made and the extent of tuberculous infiltrations of the lungs found to be menacing. Does any practical sanatorium worker believe that these processes were begun because the disease was "contracted" at some particular moment from some definite source? Not at all. He knows that far back, years before they came to the surface, these infiltrations began to weave their way through the lungs so subtly, so minutely, that no hint of their presence was given. Each day took its toll,

until finally the revelation could no longer be postponed. The heart may weaken and fail without premonitory warnings; just as the kidneys, before the days of uranalyses, crumbled away until the very end came without the slightest warning; so the lung endures the successive infiltrations without making any sign so long as the tuberculous toxins do not poison and functional capacity is maintained. We also know that during all these years of successful business activity and apparently perfect health, these underground processes, this digging out the grave, might have been detected at any time, if regular, competent examinations had been made.

The tuberculosis of the well to do teaches us that there is possibly or even probably, some personal idiosyncrasy largely influencing some cases of inability to resist tubercle bacilli. When this inability has been manifested in a family, the future descendants are somewhat unduly predisposed to failure, just as their ancestors were. Turban, Wolff, and others describe cases developing in patients at the same age and in the same place as in their progenitors, and this "disposition theory" is being constantly strengthened. The influence of gastrointestinal conditions is just beginning to be appreciated, and promises to become an important feature of future studies.

Lacking this knowledge of why tubercle bacilli become virulent in some cases and not in others, we depend upon protection from open cases, regarding the transmission of infection through the sputum as our chief danger. We are thoroughly informed that the careless patient disseminates "seven billions of bacilli every twenty-four hours," and basing our methods upon fear of contagion, we spend the public moneys in isolating and segregating these terrible sources of danger.

The whole of the tuberculosis crusade is based upon fear of infection from the sputum of open cases. The danger from without is sufficiently appreciated to inspire the expenditure of millions of dollars annually. The danger from within is so little feared, so little appreciated, that we are unwilling to take the trouble even to see if it exists, but, instead, insist upon waiting until it manifests itself. New York city has recently advised the yearly examination of each child in the public schools. If this is done by competent authorities, and not as part of a perfunctory system, we may learn in the coming years that a surprising number of children in our public schools suffer from pathological tubercle bacilli and that, through the help of open air schools, good feeding, and other antidotes, these children regain their lost immunity. After sufficient time has passed, we may learn that the overcoming of tuberculosis in the child stops the tuberculosis of the adult. The actual obliteration of tuberculosis is unthinkable and can never be accomplished by the prevention of infection, because this must inevitably occur in our children, and the conversion of harmless into virulent tubercle bacilli will always be imminent.

We already see plainly enough the pitiable inadequacy of maintaining sanatoriums at the public expense. We persistently and loudly vaunt the reduction of the tuberculosis death rate, which has been reduced one half because of better methods of

treatment, but we are silent as to the percentage of manifest cases which have not been reduced, but which, on the contrary, are steadily increasing, especially among school children. The number of cases of manifest tuberculosis has not been reduced one whit by our sanatorium methods, and can never be reduced by the expenditure of any amount of money, so long as we wait until tuberculosis manifests itself. This burden of caring for manifest cases must persist indefinitely, because, in spite of overcoming the cases of today, each year will inevitably bring its own crop of developments and demand assistance. The taxpayer can never be freed from his vast burden, and the production of future tuberculous victims can never cease, because it is a natural process inherent in the very nature of things. The competent yearly examination of every child in the public schools, if not ruined by political appointments, will detect the beginnings of tuberculous processes where and when they start in the children, and eventually teach us that the danger from tubercle bacilli is far more from within than from without.

HIGHLANDS CAMP SANATORIUM.

SOME CONSIDERATIONS OF HEREDITY.*

By SAMUEL D. INGHAM, M. D.,
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Considerations of heredity are by no means of recent origin. Many of its manifestations have been recognized since the very earliest times of which we have record. It is probable that all races of all times have appreciated its influence in the broadest sense. We might even go further and state that in the phylogenetic sense, an instinctive appreciation of hereditary characteristics is present in the lower animals, for the members of each species are unerring in recognizing their own kind. When the duckling she has hatched takes to the water, the brood hen is distressed, thus manifesting evidence of appreciation of what to her constitutes a deviation from normal heredity. The literature of all ages teems with allusions to hereditary tendencies. "Like parent, like child," "a chip of the old block," etc., are among the commonest of aphorisms.

Throughout the history of medicine much consideration has been given to the hereditary tendencies of disease; and the diatheses, constitutions, temperaments, and pathological tendencies of patients have from time immemorial been largely credited to inheritance.

Many diseases, such as hemophilia, Huntington's chorea, Friedreich's ataxia, etc., have long been recognized as being definitely hereditary, have been traced through generation after generation, and the different modes of their transmission have been accurately described. Notwithstanding the time and thought that have been devoted to the subject, it has been only within the past few years that any systematic and concerted attempt has been made to collect and analyze the data of heredity in a manner commensurate with its importance.

For ages medical literature has been descriptive in character, but only within recent times have intensive analytical methods been applied to the study of disease. Careful investigations of the laws of heredity have been particularly late in appearing, and with one notable exception nearly all of the important work on the subject has been done within the past two decades. The exception noted was the work done by an Austrian monk, who published a report of his experiments with plants about fifty years ago in an obscure journal, and both he and his work were promptly forgotten.

Problems of heredity up to the present day are largely concerned with efforts to ascertain familial similarities in different generations, or to estimate the proportion of cases of a particular kind in which similar or dissimilar heredity can be traced through two or three generations. Too frequently the observations are superficial, and the fact is ignored that the sequence of events does not prove their causal relationship. An alcoholic, whose father was alcoholic, is said to have inherited alcoholism, while as a matter of fact more careful consideration would reveal many factors which must be considered before any reasonable decision can be made.

Even where the factors are more carefully analyzed, conditions and diseases are considered to be hereditary in a greater or less degree, in proportion to the number of similar cases found in the ancestry. When based upon careful observation, such work is of value, but it does not readily facilitate the formulation of basic laws. The things which are needed are biological formulæ which will enable us to deal in future probabilities, not simply to cite past proportions.

There are many difficulties in the way of solving the problems of human heredity, for example, the practical impossibility of obtaining sufficient, accurate and reliable data concerning the individuals of more than two or three generations in the family of the average subject; the limited number of offspring in the average human family; the increase in geometric ratio of the number of ancestors in each preceding generation; the complexity of the physical and mental elements in the make up of the human animal; and the impossibility of initiating systematic experiments.

From a consideration of the accepted views of evolution, we have a valuable clue upon which to work, and important precedents to encourage us in the field of anatomical and physiological investigations. There is no reason to doubt that the fundamental biological laws apply to both animal and vegetable life. The organizations of plants and lower animals are comparatively simple; their characteristics are easily recognized, and the time necessary for their maturing is sufficiently brief to facilitate the observation of many successive generations. So in the field of scientific experimentation with plants and animals, we have good reason to look for valuable information in working out the laws of heredity. It is in fact from this source that we have obtained a definite workable formula.

The work of Mendel, lost for thirty years and rediscovered, has been confirmed repeatedly by other workers, and is gaining greater recognition daily. The experience of Burbank, who has performed lit-

*Read at meeting of the Philadelphia Psychiatric Society, No. 26, 1911.

erally millions of experiments which have been invaluable in advancing the science of horticulture, has helped to establish the Mendelian law of inheritance for the plant world. The breeding of animals has proved the applicability of the law in this field, and comparatively recent analyses of the factors of human heredity tend more and more to confirm the applicability of Mendel's laws to all forms of life.

Largely from results obtained from crossing the different varieties of garden peas, Mendel formulated his theory which in brief is as follows:

Each quality of the plant is determined by the presence in the germ cells of certain substances or "determiners." To take the color of the flower, for example, in one plant the determiners are for red, in another they are for white. When these two plants are crossed, the red and white determiners are mixed, and thus are antagonistic. If the determiners for red dominate, red is said to be the dominant character, and the plants resulting all bear red blossoms, but at the same time carry the possibility of breeding plants with white flowers. In the next generation by inbreeding the determiners are mixed, so that one quarter of them bear red flowers and breed true (pure or duplex dominant); one quarter of them bear white and also breed true (pure recessive). The remaining half of the plants bear red flowers, but are capable of breeding plants which bear white flowers (mixed or simplex dominants or dominant recessives). Thus are found three types of plants; pure or duplex dominant, pure recessive, and mixed or simplex dominant. These three types of plants are capable of crossing in six combinations.

$D.D. \times D.D. = 4 \text{ } D.D.$
 $R.R. \times R.R. = 4 \text{ } R.R.$
 $D.D. \times R.R. = 4 \text{ } D.R.$
 $D.R. \times D.R. = D.D. + 2 \text{ } D.R. + R.R.$
 $D.D. \times D.R. = 2 \text{ } D.D. + 2 \text{ } D.R.$
 $D.R. \times R.R. = 2 \text{ } D.R. + 2 \text{ } R.R.$

Although these formulæ have been found to be remarkably accurate they are yet incomplete. "Dominant" and "recessive" are only relative terms, and their qualities differ in every degree. What is dominant in one plant may be recessive in another. It should be noted also that variations in character are not necessarily due to the influence of heredity, as nature is constantly exerting a force which has the character of experimental efforts toward the improvement of the species. This force has made possible evolution itself, and may be traced to natural variations in the germ plasm. Favorable variations tend to be conserved by heredity, unfavorable ones tend to be eliminated, and thus the law of natural selection works out. These variations, arising independently of any inheritance, nevertheless influence the heritage of the succeeding generations.

Furthermore, the force of environment is an important factor which influences the character of the organism, and also, undoubtedly the stability of the germ plasm. Environment may even be the active factor in determining the variations in the germ plasm. The relative influence of the forces of heredity and of environment may be difficult to recognize in the lower forms of life as well as in the human family, concerning which so much controversy has raged. Who can prove or disprove the possi-

bility of the inheritance of acquired character? Who can prove or disprove the exact amount of influence that either heredity or environment exerts in producing the criminal?

It is impossible even to refer to many of the interesting phases of the subject in this short paper, as it is desirable to consider the more practical problems of human heredity. In spite of the difficulties, important records are accumulating, and the future promises much more in this direction.

So far as Mendel's law has been found to apply to the human race, two types of inheritance might be considered, viz., the normal and the abnormal.

To consider for a moment the transmission of normal characteristics, it is interesting to note that many individual physical peculiarities have been found to conform to Mendel's laws in their manifestations throughout successive generations. To take the color of the eye for example, it has been noted that black irides constitute the dominant trait and blue is recessive. So that when a duplex black eyed individual (pure dominant) is mated to a blue eyed person (pure recessive) all of the children are black eyed, but carry the latent recessive quality (simplex dominant). The children of two simplex black eyed parents will be in the proportion of one blue eyed to three black eyed. Only one of these three will be pure dominant or duplex, and the other two will be simplex and carry the latent tendency for blue eyes. Two blue eyed individuals can never have any but blue eyed children. A duplex black eyed individual cannot be a parent to a blue eyed child. The blue eyed parent cannot have a duplex black eyed child, and the combinations of a simplex black eyed with another simplex or with blue, will give different combinations of blue and black eyed children. From this it will be seen that once the dominant quality (black eyed) is not manifest in the stock, it does not return in the progeny, except from combinations with new stock having the dominant trait. A recessive quality, however, is often latent and cannot be recognized. For this reason it is possible for a recessive trait to be transmitted from generation to generation in the simplex or latent form almost indefinitely, a fact of the utmost importance.

Difficulties in interpretation arise from various sources, and it is particularly to be noted that the application of Mendel's law can only approach accuracy when sufficient numbers are considered to make operative the law of expectancy. In the case of the color of the eyes we have what has been called a *unit character*, that is, a quality that is transmitted as a unit. In view of the fact that the heritage of each individual includes all of the physical and psychic characteristics and potentialities with which he is born, the complexity of the problem is apparent. The number of unit characters is evidently great, and there may be much difficulty in the determination as to what qualities constitute the individual unit characters.

Applied to pathological conditions the complexity increases, since many conditions dependent upon environmental influence must be eliminated. In a consideration of the abnormal states that have been recognized as hereditary, the questions arise as to which qualities or combination of qualities act as

unit characters, and whether the given unit character is dominant or recessive. There seem to be varying degrees of dominance and recessiveness, and there is also evidence to show that in some cases one trait may be substituted for another in the following generation.

From work that has been done recently, it seems certain that the neuroses, degeneracy, criminality, certain psychoses, epilepsy, and mental deficiency act as recessive traits compared with the normal state. It is probable that some of these are dominant to others, while at the same time they are recessive to health.

Urgently needed for the advance of knowledge along this line is the accumulation of comprehensive and accurate data in sufficient quantities to form a basis for reasonable deduction. Field work, radiating from public institutions, seems to afford the most favorable available opportunities, and in a number of such institutions this plan has been inaugurated. If it were more extensively adopted and adequately supported, it seems certain that the results would repay the effort and expense.

The greatest practical importance of the entire subject lies in its significance from a sociological viewpoint. The subject of eugenics, or race betterment, which is attracting so much attention, deals with all of the factors concerned with improvement of the human species. It is therefore evident that the practical problems of heredity are of vital importance to the eugenist.

To what extent can the knowledge already obtained be applied for the benefit of the individual and of the race? The possibilities are almost infinite, but the crying need of today is a rational plan for the disposition of the defective. The transmission of normal mentality and mental deficiency has been found to conform with remarkable accuracy to Mendel's law. Normal mentality is a dominant trait. Where the germ plasm of both parents are free from taint, their children are never defective, except through environmental causes. Mental deficiency is a recessive trait. Two feeble minded parents never breed any but defective children.

When a normal individual is mated to a defective, the children may be normal, but they will be only simplex normal. When, in turn, they are mated with other simplex normals, the recessive deficiency will crop out in Mendelian proportion in their offspring to add to the army of incompetents.

It is just here that the great danger lies. It has been advocated that, since defectives mated to normals produce apparently normal children, this form of mating should be encouraged, the object being to breed out the undesirable qualities by crossing with healthy stock. This may be desirable from the standpoint of the defective individual, but how about the normal individual and the standard of the race? Who would suggest that a Burbank interbreed his healthy and defective plants with the object of benefiting the species? Are these matters to be ignored in their application to the human plant merely because of sentiment? Has not society as undeniable a right to protect itself against the degenerate as it has to defend itself from other but less personal dangers? Why not quarantine the

race against its members who are undesirable in the hereditary sense, as well as quarantine a community against contagious disease?

Under the most favorable conditions recessive characters are eliminated with difficulty. In horticulture, they persistently crop out even after individual plants manifesting them have been discarded for many generations. This is true also in the human race, and appears to be a conclusive argument against allowing known defectives to procreate in any manner. Careful consideration should also be exercised in the selection of mates for apparently normal individuals from tainted stock.

This problem cannot with safety be left to work out its own salvation. While there is a tendency in defective stock toward self elimination through deficient vitality, this is more than counterbalanced by the fecundity of this type of individuals, and by the advances in civilization which have made possible the conservation of human life, more especially in the case of weaklings. The rule of the survival of the fittest has thus been counteracted to some degree by civilization. In this respect civilization works to the detriment of the race.

Efficient methods of controlling the situation can be applied only when the dissemination of definite knowledge on the subject is sufficiently wide to insure general support to such methods. The sterilization of all of the defectives under a certain standard of mentality would benefit the race, but is impracticable on account of popular sentiment.

Segregation of this class is also desirable, and something has been accomplished in this direction. Were a sufficient number of public institutions available for such cases, the number segregated would be much greater, for it is a regrettable fact that it is difficult and often impossible to place a feeble minded individual in a suitable institution.

Many other problems than that of the mental defectives are awaiting solution. In conclusion, it may be said that comprehensive investigations of the laws of inheritance and their judicious application to the human species, offer almost limitless possibilities for the improvement of the race.

1831 CHESTNUT STREET.

FOR BETTER, FOR WORSE.

BY CHARLES H. DUNCAN, M. D.,

New York.

"She was bred in old Kentucky," is one of the highest compliments that can be paid to any mare; not because "the meadow grass is blue," or the sun shines brighter in Kentucky than in many other States, but because stock breeders there understand the breeding of horses. They have learned from practical experience many things about horses that are conducive to the development of the highest type of the thoroughbred animal. Among other things they have learned is that when a thoroughbred mare is bred to an inferior stud, she becomes permanently injured for thorough breeding purposes. It is a well known fact that when a thoroughbred mare is bred to a jack, every subsequent colt she has, even though she never again is bred to a jack, almost invariably shows some physical or other characteristics of the

jack, namely, long ears, the jack foot, coarse hair, etc. Furthermore, these colts, although not in a direct line with a jack, usually manifest, in addition to the physical characteristics mentioned, a disposition to balk, bite, kick, etc. That these colts have donkey blood in their veins is apparent, for mulish characteristics are transmitted to their colts, even to the fourth and fifth generation. In other words, the mare is indelibly stamped or stained with both the mental and physical characteristics of the jack; she becomes permanently ruined for thoroughbred breeding purposes, because she henceforth has jack blood in her veins; she is an altered animal and never again will be the same. Breeders of other high bred animals have long recognized that the male transmits his mental and physical characteristics to the female when bred to her, as in the breeding of high bred dogs. A thoroughbred bitch lined by a mongrel is no longer valuable for breeding purposes. Breeders know this well and carefully guard their females from male dogs without a pedigree. These changes in the female alter her whole physical and mental structure, and are due to the assimilation into her generative organs of the male elements of procreation. We know that the male transmits physical and mental attributes to the offspring according to Mendel's law, and in a somewhat similar manner these are transmitted also to the mother.

Our best information concerning many problems in medicine comes from animal experimentation, and it is in this direction that elucidation of many of the great still unsolved problems in medicine must be sought. The horse is an herbivorous animal; the dog mostly carnivorous. In solving other problems in medicine we believe that the law that holds good in these two classes of animals will hold also in man, for the genus, man, lies between the two in this respect, he being both herbivorous and carnivorous.

If the foregoing phenomena observed in the breeding of animals are applicable to the human species, the human mother will partake of the physical and mental attributes of the father of her child.¹ She has his blood in her veins; she is, in a certain sense, "born again"; and in the same sense the husband may be said to "give birth to his wife." For this reason she has the physical and mental characteristics of her husband so indelibly stamped in and upon her physical and mental being, that these become permanent. Several of the older obstetric writers, recognizing that children by a second husband often presented featural resemblances to the first, accounted for this on the basis of stored up mental impressions received by the mother from her first consort. Breeders of animals, however, have thrown new light upon this family resemblance. Without entering into a discussion as to how much or little influence may be exerted upon the offspring by the mental attitude of the mother, we see that other influences are operative in the production of this family resemblance. Many authorities now regard prenatal influence as a myth.² If

this is true, the only basis upon which this common resemblance can be explained is that which is under discussion.

That there is a strong featural resemblance between couples who have been married for many years is a matter of more or less common observation. The changes produced in the woman by parturition may be described as spontaneous variation, in contradistinction to hereditary variation. The wife becomes so thoroughly dominated by the characteristics of the father of her first child that, should she bear a child by a second husband, this second child probably partakes of the physical and mental attributes of the first husband. The child by a third husband manifests some of the attributes of both the former husbands, and a child by a fourth consort possesses some of the characteristics of all four husbands; for the child by either the second, third, or fourth husband manifests a tendency to inherit, through the mother, some of the attributes of the former mates. Let us assume that the first husband had red hair. If the child by the second husband has red hair, it may be inherited from the first husband. Surely, there is some blood relationship between the two, even though the offspring is not in a direct line with the man whom it physically resembles and whose traits or characteristics it may possess. It might be said that the child is indirectly related to the first husband. If this relationship has ever been recognized, it has not as yet been given a name.

In thoroughbred horses the colt by a second stud is said to have "a drop of cold blood in his veins," if the mother ever had had a colt by an inferior stud. A horse with "a drop of cold blood in his veins" is valueless, for it often stops in a race when it becomes tired and does not go through to the finish. A fighting dog with this taint will yelp when hurt, tuck its tail between its legs, and run. Such dogs are not valuable as fighters and are disposed of as pets and not employed for thoroughbred breeding purposes.

For the sake of discussion, we will call a child with dual fathers³ a duogenetic child and the mother a duogenetic woman, by which is meant that the child is by a woman who has had at least one child by a former husband. In the same sense, a woman who has had a child or children by but one husband may be called monogenetic, and the fruit of such a union monogenetic children. In the same sense we may have triogenetic or quadriogenetic women and children. Let us assume a woman in the average walks of life. If her husband possessed the acme of physical, moral, and mental attributes, the mother of his child would change to a higher level in respect of these qualities; that is, she would be vastly superior to her former virgin state by virtue of impregnation. If the husband were of low physical, mental, and moral order, she, in turn, would be lowered in these respects by impregnation through him. She would tend to the level of her husband, either higher or lower, according to his attributes. A child by a future husband also would tend to manifest these qualities. Were an ordinary man to marry the widow of the first mentioned hypothetical husband, the children by him would be superior, to

¹It is not intended to convey the impression that there actually has been a transusion of blood into her veins; but, just as she has not her father's blood in her veins, but partakes or may partake of her father's characteristics by virtue of the influence exerted by chromozones of the spermatozoon upon her mother's generative organs, so she, through the medium of the semen of her mate, partakes of the attributes of the mate.

²Adam and McCre, *Textbook of Pathology*.

³Dual is here employed in the restricted sense above described.

such to whom she would give birth if he was her first consort. In this new sense, then, a woman takes a man in marriage physiologically, mentally, and morally "for better, for worse." With this explanation we see how very akin is the wife to the husband, adapting herself to various forms and ends, receiving the impress of his being: be it hardened and severe or delicate and sympathetic, his characteristics are reflected in the mother of his offspring. The wife and mother becomes the feminine counterpart of the husband; a plastic medium recast in the mould of her mate. In a sense, man and wife tend to become "of one flesh and of one blood." This leads to harmonious family relations. Where the sex relations between man and wife are normal, union and harmony are more certainly to be found; where these relations are not normal, discord and separation are frequent.

Again, returning to the animal for the sake of discussion, the question that is sure to be asked is: "Would the mare have been stained or would she manifest variation from the parent stock if conception had not taken place after coitus?" Apparently this is a question that will not at present admit of a positive answer; still, there is much that might lead us to believe that the male elements of generation do affect the female physically and mentally without the occurrence of conception, and that repeated copulation without conception would have still more male effect upon the female. Before this problem can be answered, we must concede that it is possible for substances placed in the vagina to be absorbed.

The female organs of generation are rich in lymphatics or absorbents, especially around the cervix. At the time of copulation (during estruation or heat in the animal), the tissues are congested and smeared with blood; the very conditions under which absorption would be expected most rapidly to take place. That these act as absorbents is well known, for when certain substances are placed within the vagina the lymphatics take them up with the development of buboes. Some mucous membranes are so richly supplied with lymphatics or absorbents that they take up much material brought in contact with them as nutriment in nutrient enemata.

Let us now briefly review some well known facts:

1. At the time of copulation there are secretions in the female generative organs.
2. The whole sympathetic nervous system is centred in the generative organs.
3. At the time of coitus the whole nervous system is aroused to a high state of excitation; the organs are congested and in a state that readily admits of absorption.

It would appear, then, that there is justification for the assumption that some of the male elements of generation are absorbed, especially if coitus is comparatively frequent.

The next question that arises is: "Does this absorption cause in the female variation from the parent stock?" If this is admitted, even in the slightest degree, it suffices for our purpose. By many it is believed that in the early period of development of animal life our primordials were bisexual; that is, each individual possessed both

male and female generative organs; and that there were secretions from these organs, the union of which was necessary for propagation of the species; in other words, that when reproduction occurred, a physiological organic union of the body secretions, similar to what now occurs in reproduction in some lower forms of animal and plant life, took place. At a later period, when the tissues became more highly organized, the male generative apparatus developed, in some instances, with consequent male secretions, with retrogression of the female generative apparatus and its secretions; in others, the female generative organs developed with consequent female secretions, and a retrogression of the male generative organs occurred and, therefore, abolition of male secretions. When the unit was bisexual, union of both male and female generative secretions was necessary for perpetuation of the species. This was natural, physiological, and essential for the evolution of their physical being and to fulfil the highest function, namely, reproduction. When male and female became separate entities, it was no less necessary for full-sized individual development, that absorption of those secretions lacking in the female construction, those elements that her retrograded organs failed to supply, should still take place.

For these reasons the general health of the average normally married woman is better than that of the unmarried, that is, the virgin, excluding, of course, the accidents incident to parturition and infection. Her form rounds out; her general vigor and health improve; she escapes the tortures of celibacy. Physical health is impaired by physical torture; for there can be no physical torture without disease or violation of some physical law. There is no physical torture in the normal married woman in the absence of abnormal or improperly regulated coitus. We all have seen the celibate woman in the full flower of life who required for perfect health, if it may so be expressed, the hormones of her own being, or the male elements which formerly were an integral part of her organism. When such a one marries there is quick response to the male elements when these are absorbed through the vagina; that is, there is response to the stimulus of coitus and improvement in health; the mind and nervous system become tranquil along sexual lines and there no longer is sex hunger or physical torture. The variations from the parent stock or structural changes probably are more gradual in coitus without conception than when conception occurs and the child goes to term. Still, there is a tendency for absorption to occur after each congress, and changes, varying probably with the male, invariably follow, each increment of absorption contributing to a corresponding increment of change. It appears, then, that the variations taking place in the woman depend, first, upon the amount of absorption; second, upon the dominant properties of the male; but absorption must be more or less constant in order that she receive the elements her retrograded organs fail to supply.

When the elements necessary for the fuller rounding out of her attributes are required in her system, this is manifested by a desire for coitus. Aside from the temporary improvement in health following normally regulated coitus, it appears that

there occur deeper structural changes affecting her whole being similar to that which occurs after gestation. For example, a white woman improves in general health and vigor by consorting with a negro; but it soon appears that deeper structural changes gradually take place in her that ultimately will affect both her and any offspring she may have, even by a white man. It is well known that the blood of the same family transmitted through several generations is not conducive to the highest physical and mental development of the descendants. For this reason several of the crowned heads of Europe in the past infused into their families new blood by taking wives of no blood relation to them. The offspring from these unions are said to be mentally and physically superior to members of the family not having the foreign strain of blood. It is by judicious cross breeding that we get the highest types of animals and plants.

In further substantiation of the assumptions of the writer, a quotation from an article entitled *Skin Diseases and Their Relation to the Sexual Organs*, by S. Pollitzer, in the *NEW YORK MEDICAL JOURNAL* for October 5, 1912, will suffice. He states: "Steinbach showed experimentally that the development of the secondary characteristics in guineapigs was due to the internal secretions of the respective sexual glands, and that it was possible to bring about a virtual inversion of secondary sexual characteristics by injecting young animals with extracts from the sexual glands of the opposite sex."

It is difficult to accept the view that there is any substance in the structure of the gland itself that is not found in the secretions of the gland. If this is so, then what is to be borne in mind at present is that the female tends to partake of the physical characteristics of a male by the absorption of secretions from the male sexual glands. Parturition tends not only to cause the wife to grow like a male, but the tendency is for her to grow like that particular male who is the father of her child. Since she tends to grow like her husband in physical and mental characteristics in this instance, and Steinbach shows that the female may be made to grow like a male in physical characteristics when she absorbs male secretions, then, logically, it follows that the female tends to grow like the male whose secretions she absorbs by copulation without conception.

The *NEW YORK MEDICAL JOURNAL* says editorially in the November 7, 1914, issue, quoting from the November, 1914, issue of the *New Review*: "Loeb also instanced the feminization of male rats by the implantation of ovaries which made them act like females toward other males." It appears that in these rats there is an overbalancing or a surplus of the secretions from the female sexual glands. The normal female requires the male secretion for proper balancing, so these male rats with ovaries require an addition of the secretion from the male sexual glands for proper balancing. This overbalancing predominance of the secretions from the female glands is manifested by a desire for the male elements that prompt them to act like a female when she requires the male secretion.

That the whole human structure may be profoundly and permanently affected by the introduction of substances into the tissues derived from the sexual organs is demonstrated by the following abstract

taken from Dr. Henry T. Brooks's masterly work on *General and Special Pathology* (page 344). Doctor Brooks says in substance: "The rudimentary mammary glands of a virgin animal may be made to lactate by hypodermically injecting into her tissues the extract of fetus taken from another female."

Physical sexual torture sufficiently prolonged necessarily leads to pathogenic conditions, so beside the physical torture or sex hunger referred to in an earlier paragraph, future investigators probably will find that there are many pathogenic conditions referable to this condition, the cure of which will lie in supplying the lacking hormones from the secretions from the sexual glands of the opposite sex, the semen and the normal vaginal secretions. The celibate individual often has a multitude of symptoms arising from celibacy, which disappear when the celibate condition is terminated.

In developing a new thought, one never knows how far it may eventually be found to reach, especially a new thought like this, that opens up many truths that lie at the foundations of our very life and existence. Let us recapitulate before taking up another phase of this subject and separate accepted facts from more or less theoretical deductions in what has preceded:

1. The wife and mother receives or has transmitted to her the physical and mental qualities of the father of her child.
2. A child may have two or more fathers.
3. A duogenetic woman may endow the child of her second husband with the characteristics of her first.
4. The wife, but not the mother, probably has transferred to her the physical and mental characteristics of her husband.
5. The wife, but not a mother by the first husband, will probably transmit his characteristics to a child by a second husband.

If animal experimentation means anything, we must accept the first, second, and third of these statements. These are deductions from well established facts and are probably true in their essential features. If we accept the fourth or fifth or both as containing some truth, it opens a field of thought the possibilities of which are endless. Yet, minutely examining the various physiological functions, observations, and possibilities, we see there is much that might lead us to believe that there is some truth in each of these statements, and that each copulation affects to a greater or less degree, in the manner suggested, the female and her progeny. The mind seems to halt before the avalanche of fearful consequences when we consider the vast army of public women and semiprostitutes. What a frightful conglomeration and mixture, often of the most vicious characteristics, are transferred to them! It appears to be a blessing that they so infrequently procreate.

An investigating mind seeking only the truth will follow it through whatever highways or byways it may lead. Topics like the one under discussion have in the past been so intimately connected with religion that it has been considered unclean to discuss them even in scientific articles, and a physician who has the courage to write on this and kindred topics rarely escapes severe criticism at the hands of the unthoughtful reader. "To the clean all things are

clear!" In connection herewith we are reminded of the dense ignorance and superstition with which we long beheld the human body. Galen deemed himself most fortunate to see into a human body that had been injured by an accident. For fourteen centuries his inexact knowledge of anatomy was all we knew of the structure of the human body. It was considered a sin to dissect or cut into or open a human body, and as a result we floundered in gross ignorance until the holy of holies was entered by investigators, and then much that was obscure was made plain. "There is nothing either good or bad, but thinking makes it so."

The next question encountered in following this line of thought is: Does copulation cause variation from the parent stock in the male? Does it tend to raise or lower his physical and mental characteristics to the level of those of his wife? It appears that there is little at present upon which to base an opinion regarding this phase of the subject. It is a problem that must be left for future research.

Before we can enter intelligently upon this discussion, we must answer in the affirmative two questions, namely: 1. Are the tissues of the male organ capable of absorbing substances with which they come in contact? 2. Are there distinctive secretions in the vagina? If these two questions are answered in the affirmative, then and only then can we take up the third and most important question, namely, Do variations from the parent stock occur in the male after absorption? Were we to select upon the human body a site for inunction of any medicament into the tissues, it would be difficult to choose one where it would more quickly be taken up than the glans and prepuce. At the time of coitus these are distended and gorged with blood and, therefore, it would appear, in a most receptive state.

There are normally found in the vagina mucus; bacteria, distinctive of the human vagina; menstrual flow: the contents of the Graafian follicle in its passage from the uterus; and smegma. There often is also at the time of coitus a discharge of sexual nerve force. Normal mucus often is present in the vagina during sexual excitation, but we know comparatively little about the normal secretions of the vagina. The most natural time for coitus in the female is during ovulation, which usually is coincident with menstruation. In the prebisexual state we can readily understand that this would be the moment when organic union of the secretions of the body took place. The male being a part of the female—that is, each a part of the other—the male naturally would be affected by any physiological phenomena profoundly influencing the female. We cannot escape the fact that at the time of copulation the male glans and prepuce receive inunction with secretions that are in the vagina. What is the effect of this absorption upon the male? It is physiological and natural that they should be taken up. In the primitive bisexual state, when both the male and female constituted an entity, to say that the male organism was not affected by conception and gestation would be against all reason. The inference is that the male is affected, but inferences unsupported by evidence are of little if any value.

It need scarcely be pointed out how difficult it would be to prove the permanent effect of absorption

upon the male, because so many factors must be considered. Talmy says: "After coition (we will add 'after absorption'), there is a sense of desire gratified, a sense of well being, of drowsiness and sleepiness." There is less sex hunger. It may be said that desire satisfied in the male may be traced to several sources, namely, relief from pressure of the stored up seminal fluid and of sexual nerve tension; psychic effect in giving pleasure to another. But can we affirm that it is referable solely to these sources? We cannot, because of our limited knowledge of the subject.

It would appear, then, that the ancient Hebrew religious rite of circumcision interferes with absorption in the manner suggested, because the removal of the prepuce subjects the glans and adjacent tissues to an irritation resulting in a thickening and induration of the epithelial covering. In noncircumcised subjects the prepuce covers the glans in a quiescent state, thus preserving the delicacy of the tissues protected by it. Again, the prepuce holds the secretions in contact with the glans; each of these factors facilitating absorption.

By the ancients the generative organs of both the male and female were worshipped and regarded as sacred. Abraham took his sacred oath by placing his hand upon his phallus. Owing to the reverence accorded to them, they were depicted in heroic size before the doors and upon the walls of the temples of worship. As a remnant of this ancient veneration, the generative organs of both sexes are even now plainly to be seen from certain angles in the statues and paintings adorning the sanctuaries of many of the old world churches. It is altogether probable that the superstitious reverence accorded to them in the hazy past will, in the future, find expression in scientific knowledge that will reveal to us the enormous responsibilities resting upon the individual relative to the sexual organs, and that thereby our lives and destiny may be irrevocably altered or changed, and these changes affect not only the individual but posterity as well.⁴ It is altogether possible that in every sexual act there is a reciprocal specific influence manifested that permanently affects not only the male and female, but any child that may be born either to them or their descendants.

How mixed must be our genealogy; how little sound heredity there is in the world; how many evil recesses or drops of "cold blood" or possibly stains great and small are being handed down to posterity during this generation. How many yellow streaks have our forefathers handed down to us. "We are the same our fathers have been." At night the whole human world goes sex hunting; copulation merely for pleasure is not new. What increments of variation are constantly going on in individuals, in the race, and in the world! How little we understand these changes! What insurmountable barriers of blood between us and human ideals!

It is the object of this paper to arouse thought in the reader; for, this accomplished, it will not be long before more will be learned of this vital and most obscure subject.

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⁴It appears that changes will ultimately appear in the male as well as in the female, the exact nature of which is not easy to determine, but it requires a much longer time and more frequent exposure to the female secretions than is the case with a parturient woman.

AN ECONOMIC VIEW OF DISEASE.

By B. F. REA, M. D.,
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If we review the history of medicine, we are surprised at how recent is our knowledge of the true pathology of the infectious diseases and the way in which they are transmitted. Until we knew this, we had no efficient means of prevention. Thucydides, 400 years before the Christian era, wrote about the plague at Athens, ancient Greece. I make a quotation from his graphic description:

For awhile physicians, in ignorance of the nature of the disease, sought to apply remedies; but it was in vain, they themselves were among the first victims because they oftentimes came into contact with it. No human art was of any avail and as to supplications in temples, inquiries of oracles, and the like, they were utterly useless and at last men were overpowered by the calamity and gave up all remedies. As to its probable origin or as to the causes which might or could have produced such a disturbance of nature, every man, whether physician or not, will give his own opinion. Appalling, too, was the rapidity with which men caught the infection, dying like sheep if they attended one another, and this was the principal cause of mortality. The dead lay as they had died, one upon another, while others, hardly alive, wallowed in the streets and crawled about every fountain craving for water.

Boccaccio gives us a vivid description of the plague at Florence in the fourteenth century. Indeed, medical history records numerous epidemics of the plague as appalling as the descriptions by the two authors quoted. It was only quite recently, in 1894, that Yersin and Kitasato discovered, almost simultaneously, the bacillus of plague, and soon thereafter its mode of transmission to man was discovered. Up to this recent date we had no means of preventing the spread of this infectious disease. With the exception of vaccination for smallpox, we had no efficient means, until comparatively recently, of preventing the spread of any of the infectious diseases.

The researches and discoveries of Pasteur, Koch, and Lister are the foundation on which is built all our knowledge of scientific medicine, surgery, and preventive medicine. A host of bacteriologists have enriched the world by discoveries, but they built on the foundation established by these pioneer workers. These men who immortalized their names and were mankind's greatest benefactors, died but yesterday, so to speak, Pasteur died in 1895, Koch in 1910, and Lister, February 10, 1912. The work and discoveries of this immortal trio were the beginning of all scientific medicine, surgery, and preventive medicine. These sciences up to their day were very nearly what they had been in the middle ages. Aseptic surgery may very properly be called preventive surgery. The surgeon merely sterilizes the field of operation. In selected cases no chemical antiseptic need be employed, heat being the only means used. The surgeon only keeps out the germs; nature quickly heals the wound without a particle of pus. Although preventive medicine is yet in its beginning, it has saved innumerable lives. Comparatively few in the world realize the significance and wonderful possibilities of scientific and preventive medicine. A great many people are still skeptical about germs.

We are not making a practical application of our knowledge of bacteriology in the prevention of

disease. Take milk, for example. In the county in which I live, there is not a glass of milk that can be certified as pure. I fear the same conditions exist in the rest of the counties of the State. Dr. J. W. Trask, of the Public Health Service, compiled from the literature of England and America 500 epidemics of typhoid fever, scarlet fever, and diphtheria caused by infected milk. Miss Julia Lathrop, chief of the recently established Children's Bureau at Washington, has written: "Last year 300,000 babies less than one year old died. At least half would now be living had we, as individuals and communities, applied those measures of hygiene and sanitation which are known and available. Vast and immeasurable loss of infant life is due solely to civic neglect."

What Miss Lathrop wrote of infant life, is equally applicable to adult life. The economic gain to the South, provided we apply it, of the comparatively recent discoveries that mosquitoes transmit yellow and malarial fevers, is immeasurable. This discovery shows that there are no diseases in the South due to climatic causes. We know today that the important relation of garbage to disease lies in the fact that it may come under certain circumstances breed flies, which in turn serve as carriers of pathogenic germs. Communicable disease does not arise from decomposing organic matter, but from persons. Some of these pathogenic germs are also ultramicroscopic, the germ of epidemic poliomyelitis for example. These may be spread by unrecognized and carrier cases. Healthy persons may carry the germs of cerebrospinal meningitis in the nose. A very striking illustration of this fact was demonstrated in the recent Texas epidemic. The health board had issued notices counselling the populace against collecting in crowds, attending mass meetings, or visiting places of amusement. For a time these precautions had been observed, and it was noticed that the cases were diminishing in number. In the month of March a prominent gypsy preacher visited one of the principal cities and spoke to large gatherings. Immediately the number of cases increased and the city was laboring under the worst period of the epidemic.

Almost all diseases vary greatly in severity. There are mild and atypical instances of disease which are not recognized. Measles, scarlet fever, influenza, and other infectious diseases may be so mild as to escape notice. Children with these mild cases go to school, ride in street cars, attend theatres, and thus spread the disease. Poverty is one of the contributory causes of disease. For example, there are many persons who are too poor to screen their residences properly, without which no home can be healthful. Many of the poor, for lack of fresh air and wholesome food, have lowered vital resistance and are more susceptible to the development of pathogenic germs. For hundreds of years man accepted disease as a visitation of Providence. We now know that it is from germs. So precise has our knowledge become, that it is possible to live unscathed in the midst of a raging plague. During the great epidemic of cholera in Hamburg, in 1892, none of the doctors or nurses contracted the disease, although they

were in close contact with it. To prevent disease and to conserve the health of the people we need larger appropriations for public health service.

At the last meeting of the Alabama legislature a bill was introduced to abolish the office of county health officer, the most vitally important office in the county. The appropriations for the public health service are insignificant compared with its importance. We need specially trained, all time county health officers. One of the functions of the county health officer is to teach the people preventive medicine. From an economic standpoint it will be good business for the State to spend a great deal of money to prevent disease, as by the prevention of sickness there would be increased production of wealth.

PRACTICE IN A MEXICAN MINING CAMP.*

BY WILLIAM HARTZ, M. D.,
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The great Southwest, a vast expanse of desert land, is still, as in the days of the padres, a land of tradition since it has not been influenced by the progress and civilization of the rest of the United States. On a tour through New Mexico and Arizona, one seems to feel that he is in one of the small towns of Old Mexico, notwithstanding the fact that he is still on American soil.

My practice was in a small coal mining camp in New Mexico, named Carthage. In contrast to its obscurity, it is situated in the Rocky mountains, at an altitude of 5,000 feet, ten miles from the Rio Grande and the nearest branch of the Santa Fe railroad. The desert which surrounds it is broken up by irregular lines of hills, mountains, and peaks, and these in turn are separated by arroyos, grand cañons, and huge chasms.

Rainfall is conspicuous by its absence and there is as a result a scarcity of vegetation. Greasewood, cactus, snakeweed, sage brush, yucca or Spanish bayonet or soap bark, crazy or loco weed, mesquite, stunted cedar, chapparel, sand burrs and chimaha or wild celery, and ocha or gentian are encountered on the sandy hills and mesas.

The climate is ideal. The air is rarefied and dry, yet in spite of the heat in the summer months, it is not oppressive and heat prostrations are rare. It is the climate most suited for cases of tuberculosis. With the setting of the sun a mountain coolness is suddenly felt and extra blankets are necessary for comfortable sleep.

A few Americans are in charge of the camp and a small percentage of the drifting population includes Swedes, Scots, Russians, Slavs, Italians, Frenchmen, Spaniards, and negroes. The descriptions which follow refer to the Mexicans alone, as others comprise but five per cent. of the total camp population.

About 300 Mexicans, who work in the mines, live here with their families. They are of a lower type than the familiar laborer of southern Italy, and a little above the poor peon of Mexico. Taken

as a whole, they are illiterate and are closely related to the pueblo or village Indians. They are ignorant and have few desires. The men try to possess a horse and rifle, while a sewing machine gives prestige to the woman who owns one. Thus their wants are easily filled and they do just enough work in the mines to keep hunger from the door. The men show extremes in development, being either tall and broad shouldered or stunted in stature. The women are short, but for what they lack in height they compensate in girth, as few know the use of a corset. Illiteracy is common. Spanish is still the spoken language. Though the Southwest has been part of the United States for many years, and the Mexicans speak English well, they hate to converse in it. They are governed by hard and fast traditions, dating back for centuries. Their answer for so doing is always the same, *no es costumbre* (it is not the custom). Their ambitions are small; their pleasures and joys are those of growing children. They love to dress in gaudy clothes, but show lack of harmony in color combinations. They are lazy and take to a *siesta* better than anything else. They will squat for hours upon the ground, rolling and smoking cigarettes, spinning tops, and shooting marbles. Sometimes, for pastime, they will rope bucking broncos or mustangs and break them for saddle use. Children are taught to ride as soon as they can sit astride a horse.

They differ from gypsies in that they have a permanent abode. They are not nomads, but live in huts and lean-tos built into the sides of the hills. The walls are of adobe (sun dried bricks). A low opening serves as a doorway, while small holes in the sides give light and air. The roof and floor are covered with brush and mud. On account of the little rainfall these houses are very serviceable, being quite cool in summer and warm in the colder months. Two small rooms suffice for a family of ten or twelve individuals. One bed is used for the head of the house and the rest sleep on the floor, on mattresses, or on deer hides or goat skins. Hogs, chickens, and dogs have free entrée to the house.

The women as well as the men smoke brown paper cigarettes, which they roll with a dexterity that would shame an Eastern fiend of the weed. It is no uncommon sight to behold a black robed woman with head draped in a mantilla or fringed shawl, squatting on the floor and enjoying a home-made cigarette. Even girls imitate their elders by sneaking behind the house to smoke. At a *baile* or dance these women publicly nurse their babies and smoke cigarettes at the same time.

The doctor on his rounds usually finds the room dark and foul smelling. On admitting light and air, an unusual sight confronts him. Lying on the bed, fully dressed even as to shoes, he finds the patient, smoking the usual brown cigarette and moaning at intervals, while about the room, squatting on the floor, are a few old crones enjoying their cigarettes. The ailment in most cases is a headache induced by hyperacidity and constipation. This trouble is due to their diet which consists of sun dried or jerked beef and goat's meat, canned foods, frijoles or Mexican beans, vegetables, *tortillas* (a

*Read before S. E. Branch County Medical Society, October 17, 1914.

form of pancake), and last but most troublesome for the doctor, is a form of red pepper called *chilli*, which is stronger than cayenne or paprika and is incorporated with every dish. A Mexican is known by his fondness for chilli and frijoles. The remedies for a headache are blue revenue stamps from packages of smoking tobacco, pasted on the forehead and over the temples, while paper coated with mustard and potato chips soaked in vinegar are also used at times.

Though food is highly seasoned, constipation is the rule. The Mexicans are so lazy that a much needed purge is delayed if the weather is a trifle cold. Eager for an excuse to lie off from work, they always pretend to be ill and are glad when the doctor orders a rest.

The infant mortality is astounding, because of ignorance. I have knowledge of one woman who bore twenty-two children, all of whom died except two, and these survived in spite of their poor raising. At the age of six months they are fed on dried meat, beans, and chilli, and the mothers manifest astonishment when such a diet is interdicted.

During an illness patients are never bathed, while in health a bath is a luxury. If seriously ill, they refrain from calling a doctor for a long time. Some never call the doctor, but resort to native remedies. I can recall a case of chronic conjunctivitis of forty years' duration. The man became blind because a doctor was never consulted. Faith in patent medicines is great and many Eastern firms reap harvests when they send out booklets praising the virtues of their respective cure-alls. The natives readily will spend fifteen dollars or more for one course of treatment outlined in these books. They are great believers in native remedies, especially those dispensed by old women.

Quinine and "blood" medicines are always demanded of the doctor. Metallic mercury in good doses is used to relieve constipation. This is a survival of a medieval custom. The natives are superstitious, and signs and omens influence their lives a good deal. If a patient is very sick and in danger of dying, they consider this as a sign that death is preordained, and all further treatment is stopped, hope is given up, they become indifferent and refuse to admit the doctor when he calls. They are fatalists. The following case serves as an illustration. A man acquired cellulitis of the foot from an infected wound. He was seen by the doctor after the process had extended up to the thigh. Radical treatment was insisted upon. The family would not hear of it. The man became worse. The doctor was refused further admittance, but he returned with the deputy sheriff, a prominent Mexican, who cajoled them into letting the doctor have his way. The man ultimately recovered in spite of his family. Before this treatment prejudice against the doctor was strong. Afterward, the doctor gained respect and prestige among the Mexicans. If the doctor is liked they will bring favorite horses and pets to his office for treatment. They are easily swayed and their praise may turn to derision if a treatment ends unsatisfactorily. If a tooth needs extraction or an abscess requires lancing, a solemn procession of three or four women accompanies the patient to the doctor's office.

The news of an accident in the mine soon spreads over the camp. When the man who is hurt is taken from the mine to his home, the doctor finds the house filled with the ever present crowd of women in black, squatting on the floor and smoking cigarettes. For days there is an endless procession of friends from nearby towns to the home of the afflicted one.

The doctor is never engaged in advance on an obstetrical case, but is called at the last moment. He finds the woman fully dressed and walking about the room. He must resort to much moral suasion to make her remove her clothes and lie down. A goat skin serves the purpose of a Kelly pad or rubber sheet. Labor is of short duration and not difficult among the Mexicans. The exclamation is heard as the child's head is born, "*Gracias a Dios*" (thanks be to God), and is repeated by the women who stand around. Then shawls or hoods are placed on the heads of the mother and child. The significance of this, I do not know.

The native procedure in a case of labor is as follows: From the ceiling a rope is suspended which the woman in labor pulls, while she squats on the floor. In front another woman is in readiness to catch the infant as it falls. Sometimes a man will squat and have his wife sitting on his lap, while his hands are tightly compressed over her abdomen, as an aid to her labor pains. Many times I noticed finely chopped pieces of onion over the genitalia, as their presence was supposed to mitigate the pains. The puerperium is short. The mother gets up on the third day, often sooner.

The doctor often encounters a case of a general maculopapular eruption with marked pruritus. The first thought is of an infection, but the patient is not ill. Close inquiry reveals the cause of the eruption. It is due to the bites of the *chinchas* (a species of bedbug), which the dark poorly ventilated adobe shacks harbor in great numbers. The remedy is simple and the natives are awed at the quick cure. Certain insects abound there, the bite of which is followed by pain and rapid swelling. The lip is usually attacked and swells many times above its normal size. This recalls the "kissing bug" scare of a few years ago.

The ants in this vicinity are about one half inch long and their bite is poisonous and causes a similar swelling. Children playing in the vicinity of ant hills are the usual victims and the genitalia suffer in consequence. Epidemics of pink eye are common. The native remedies for it are infusion of tea leaves, salt water, a mixture of camphor and whiskey, tobacco stamps pasted on the lids. In case of earache they stuff the canal with tobacco and oil, and one can imagine the astonishment of the doctor on extracting tobacco from the ear. For nosebleed, they resort to a coat of whitewash freely applied over the bridge of the nose and over the back of the neck. In adenitis, salt is vigorously rubbed over the site. Over a general swelling a mixture of chopped flaxseed and vinegar is applied. In open wounds and ulcers a preparation of hog fat and lye or "hog soap" is used. To close fresh cuts, wood resin is smeared in. For fever, a brew of various herbs and roots is made. Many of them are similar to United States pharmaco-

pecial preparations, as infusion of wild celery, or chinahab, decoction of sage brush, and wild gentian root. They also use camomile flowers. To drive out bugs, the houses are fumigated with acetylene gas, which is generated by sprinkling pieces of carbide on the floor and adding water. To get rid of gnats and mosquitoes, a smudge fire is built in front of the open door and the house filled with smoke.

There is truth in the old adage that "one half of the world does not know how the other half lives."

2510 WEST LEHIGH AVENUE.

A CASE OF XANTHIN CALCULUS.

BY JACOB ROSENBLUM, M. D., PH. D.,
Pittsburgh.

(From the Biochemical Laboratory of the Western Pennsylvania Hospital.)

Xanthin¹ was first discovered in a urinary calculus weighing eight grains by Marcet (1) in 1817. There are several cases on record where it has been found in the urine as a sediment. MacLagan (2) found xanthin crystals in the urine of a supposed hysterical girl; Jackson (3), in a case of diabetes mellitus; Bence-Jones (4) in the urine of a boy; Weiske (5) in a case of leucemia in an animal; and Cottereau (6) in urine of a boy.

The chemical nature of xanthin was first studied by Liebig and Wöhler (7), who analyzed a stone removed by the elder Langenbeck. This stone was removed from an eight year old boy and was the size of a hen's egg. They were able to show that this stone was composed of the same substance that Marcet had described. Unger (8) was able to verify these results. Langière (9) recorded the third case of a xanthin calculus. Lebon (10) described the fourth case and records a stone composed of xanthin, uric acid, phosphates, and calcium. Hoppe-Seyler (11) mentions the fifth case and Dulk (12) the sixth.

A careful search of the literature shows that only these six cases of xanthin calculi have been described, therefore its rarity can readily be seen. I have lately been able to examine a stone of this nature. Dr. E. Zugsmith, of this city, turned over to me a spontaneously passed stone from an adult man, for chemical examination. This stone weighed 0.3300 gram and was of a canary yellow color. On cross section it appeared amorphous, and on rubbing took on a polish resembling that of wax. On heating the powdered calculus on platinum foil, it burned completely, without flame or odor. The powder did not give the murexide test, it dissolved in nitric acid without effervescence, and the dried yellow residue of this nitric acid solution became orange on the addition of sodium hydroxide solution and red when heat was applied. The powder was readily soluble in potassium hydroxide solution, less so in ammonia, scarcely at all in water, even after boiling. The passage of carbon dioxide through a solution of the powder in potassium hydroxide produced a white precipitate, which after washing with water and drying, formed hard yellow pieces becoming waxlike on friction. The powder was insoluble in alcohol and ether.

After boiling some of the precipitate produced by carbon dioxide with concentrated hydrochloric acid and a little potassium chlorate and evaporating to dryness, a purple violet color was produced, on addition of one drop of ammonia to the residue (13).

After boiling some of the powdered calculus with a solution of potassium hydroxide and filtering, the filtrate was treated with hydrochloric acid and the precipitate filtered off. The precipitate consisted of globular masses, soluble in ammonia, and on adding ammoniacal silver nitrate, a gelatinous precipitate of xanthin-silver oxide was precipitated.

After evaporating some of the powder with nitric acid to dryness, a yellow residue was obtained which turned reddish yellow on addition of potassium hydroxide solution, and reddish violet on subsequent warming, and this color persisted on continued heating of the residue.

From the chemical data given in this paper, it will be noted that this stone was composed of xanthin and represents the seventh case of such a stone.

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5737 FORBES STREET.

Correspondence.

LETTER FROM GENEVA, SWITZERLAND.

Activities of the Red Cross at Lyons, France—Bérard's Clinic at the Hôtel Dieu—German and French Projectiles—Mortality from Wounds—Gangrene and Tetanus—Teller, Lumière, and Carrel—The Desgenettes Military Hospital—Rolle's Ophthalmic Clinic—Arcelin's Radiographic Technic.

The city of Lyons is quiet, the exposition, which opened a few months ago, having only recently closed. The streets are filled with soldiers, however, and numerous military automobiles are met with, many carrying the flag of the Red Cross. There are certainly fewer wounded at Lyons than at the time of the battle of the Marne or that around Mülhausen, but the hospitals and the numerous institutions of the Red Cross still contain many, more than ten thousand. They are divided into four groups, viz., the military hospitals, comprising 5,000 beds; the civil hospitals, having about 4,000; the auxiliary hospitals of the Society for the Aid of the Wounded, 3,500 beds; and lastly, the hospitals of the Union of the Women of France (1,000 beds) and the municipal ambulances of the city of Lyons (2,300 beds).

Nearly all the surgical services of the civil hospitals have been placed under military control, and the surgeons wear the uniform of the Red Cross.

¹Xanthin or 2,6-dioxypurin, C₅H₄O₂N₄.

One of the best is undoubtedly that directed by Professor Bérard at the Hôtel Dieu. As our readers undoubtedly know, Bérard is one of the younger and better known exponents of French surgery. He has several wards, among which is the *Dôme*. The latter, situated under the great central dome of this old hospital (its foundation dates back to the tenth century), was formerly the chapel of the hospital.

This vast space, with its vault forty metres in height, its walls of black marble, its high and severe altar, all in marble and surmounted by a high cross of gilded iron, has been transformed into one huge ward. With its military beds with the multicolored uniforms scattered about, it presents quite an original aspect, one that leaves a deep impression upon the mind.

There are two distinct services. At one end of the building are the aseptic operating rooms, at the other two operating rooms for septic cases arriving directly from the field, with infected compound fractures, etc. Unfortunately the majority of wounded are brought in an infected condition, particularly those who have been injured by the explosion of bombs or shrapnel balls. The ordinary German projectile is small and very pointed, so that it spreads aside the tissues and the cloth of the uniform, passing through the garments without carrying debris into the wound. On the other hand, the projectiles of the shrapnel or the bits of metal from an exploded bomb, being larger and irregular, carry much foreign matter into the tissues, and these are the cases presenting infection and tetanus.

In spite of this, it is pleasant to be able to say that the great majority of the wounded recover. Out of a total 1,050 wounded cared for to date (December 1st) in Professor Bérard's service, there have only been fourteen deaths, divided as follows: Four patients brought in a hopeless condition, four deaths following surgical interference, three from tetanus, and three from emphysematous gangrene. There have been in all eight cases of tetanus with five recoveries by Lumière's method of treatment and only twenty amputations. From such excellent results the conclusion to be drawn is that all wounded should be at once transported to properly equipped hospitals.

Among Bérard's coworkers should be mentioned Doctor Tellier and Mr. Lumière, the inventor of color photography, who is a chemist and bacteriologist of high repute. Last but not least, he has had the great advantage of the assistance of Dr. Alexis Carrel. The latter has not had, unfortunately, the opportunity of applying his novel methods to any great extent as yet, because, as already stated, the wounded are almost all infected at the time of their arrival in the wards, but he has been able to do some bloodvessel grafting and nerve and arterial sutures which have given good results. This cannot be considered as strictly military surgery, but in well organized clinics it may properly be looked upon as a branch of surgery which, in the future, will allow one to repair serious damage, thus rendering great service to humanity. One of Carrel's happy innovations is continuous aspiration of infected wounds, particularly of the joints, also in traumatic purulent thoracic empyema. Let us add that twenty-five

years ago, this treatment was employed currently by Professor Léon Revilliod, of Geneva, with remarkable success.

Another learned man of Lyons is August Lumière, who diligently applies his numerous discoveries to the relief of the suffering. Without taking into consideration the radiographic service under his direction, he has endeavored to find a successful treatment for tetanus, and it is not premature to say that he has obtained more than suggestive results. His vaccine for typhoid, administered by mouth, appears to work well, and he has so far sent 500,000 doses to the French army.

Another service to be mentioned is the Desgenettes military hospital. This is a vast building on the Quai du Rhône, opposite the University, and bears the name of the great army surgeon under the Empire. It contains 700 beds. The surgical service is admirably organized and very active under the direction of Doctor Patet, also well known in French surgery. He has been doing much nerve surgery with most excellent results.

At this hospital Doctor Arcelin has perfected the radiographic technic to such an extent that by a particular system of two different expositions he can locate the projectile with absolute precision in the vast majority of cases. An excellent system also obtains at Desgenettes, in that there are two special services for injuries of the eye under the direction of Professor Rollet and another for wounds of the nose, throat, and ears, under the direction of Professor Lannois.

Professor Rollet has had made a gigantic magnet for the extraction of metal; its power is such that even projectiles lodged in the midst of the muscles have been withdrawn.

Medical Queries and Answers

The JOURNAL is now prepared to answer questions from subscribers on strictly medical topics, recent treatment, bibliography, operative technic, etc. Personal replies are sent by mail as soon as they can be properly prepared; later, such answers as seem to be of general professional interest will appear in this department. Subscribers are requested to confine their queries, general or personal, to matters of serious medical import.

What is the newest medical treatment of goitre, especially of the parenchymatous and adenomatous forms?—The pathology of the present age has contributed much toward a more just appreciation of the phenomena of goitre; but we are not aware that Wölfler's classification of the forms of goitre into the vascular, hypertrophic, adenoma fetale, and adenoma gelatinosum, marks the commencement of a new epoch in goitre therapeutics, which must still be regarded as that of empirical medicine properly so called. There are three new ways of treatment. The first and most ambitious way is the specific—the way of Möbius and Beebe. These experts invent a theory of the disease; they strike a single attitude, and look at goitre from a special point of view. The serum of Beebe and the antithyroidin of Möbius apparently have not had much credit; these agents have a way of breaking

down almost at the first application, and usually no one finds that the nucleoproteins of the thyroid gland produce antibodies. (See Portis and Bach, *Journal A. M. A.*, lxii, 1884, 1914). The serum method is strictly a personal method (Beebe, *Post-Graduate*, xxix, 98, 1914)—a statement of one sided aspect, giving fresh impetus to old problems and discussions—whether, for example, every case of goitre is toxic, whether secretion is excessive or diminished only. We are referring here to concrete instances where serum and antithyroidin were proved to act in opposite ways, increasing secretion, or changing a colloid into an exophthalmic goitre. (Kempner, *Centralblatt für die Grenzgebiete d. Med. u. Chir.*, xviii, 355, 1914.) The second and safer method is the method of medicines—the method of calcium and quinine. This method is therapeutics in detail, treatment by recognition of symptoms, point by point. This brings us to the injection of iodine, atoxyl, chloride of iron. The injection of these drugs may be effective—it may give the physician greater opportunity for curing goitre in its different forms, but it certainly means closer danger. (Ewald, *Die Erkrankungen der Schilddrüse*, p. 131, 1909.) Iodine is the normal remedy, but its effects in application are neither sure nor harmless. Large doses increase the thyroid secretion. No better instance of the change in the gland wrought by this increase could be offered than the cases described by Kocher (*Archiv f. klin. Chir.*, Vol. 92, 1910), in which a simple colloid goitre became exophthalmic. Whether we shall ever arrive at and possess exact knowledge of the action of iodine is doubtful. For most physicians its benefits are manifest, but it must be given in the "free" state. In all our records of cases, small doses of iodine are the ones which may be definitely stated to have good effects. Had we enough data, we might be able to draw an instructive comparison between iodine and other drugs used by injection—arsenic and carbolic acid. (See Ochsner and Thompson, *Thyroid and Parathyroid Glands*, 79, 1910.) The cases reported show how very uncertain the effects of drugs may be in simple and adenomatous goitre. (Schneider, *Goitre, Diagnosis and Treatment Based on 1,000 Cases*, *Southern California Practitioner*, xviii, 323, 1913.) Quinine has of late become fashionable in cases of exophthalmic goitre. The general statement is made in current literature (*Bulletin gén. de théor.*, t. 167, 39, 1914) that large doses of quinine cure. The questions which calcium opens up are very important. It has waited to achieve its full share of popularity for the researches of the present day, for it is not a dangerous drug. Indeed, it is suited to cases too serious and difficult for the majority of remedies.

The third and newest method is the method of what are called physical therapeutics—the method of x ray and radium. Ludin gives the details of this way in the different forms of goitre (*Centralblatt für die Grenzgebiete d. Med. u. Chir.*, xviii, 205, 1914). It is often efficacious, but produces in some cases excessive growth of the capsule and excessive secretion. (Chvostek, *Wiener klin. Wochenschr.*, 191, 1910.) The occurrence of myxedema

after x ray increases the difficulty of estimating its value. The relation of the thyroid and thymus has suggested the application of the ray to the latter. Its experimental character is obvious. (Ortner, *Mitteilungen d. Ges. für innere Med. u. Kinderheilkunde*, xii, 231, 1913.) Radium is of service to those who are quite unhampered by economy. (See *Lancet*, ii, 924, 1913.)

We have published in the JOURNAL different accounts of the effect of x ray and radium in goitre. The method is an enterprise which depends for its result less upon the case than upon the operator's skill and technic. Even after precautions were taken to prevent burns, they have occurred.

How is malt soup prepared? What is its value as a food?—Malt soup is generally recommended during the first three months of life. It is avoided during the first fourteen days. It was introduced into medicine by Liebig in 1865, and modified with advantage by Keller in 1896. Liebig's monograph appeared in 1866, *Suppe für Säuglinge*, Brunswick. Keller's article you will find in *Thérapie der Gegenwart*, 57, 1901. It appears that the original use of malt soup in acidity was scarcely justified. However, Gregor and Keller reported seventy-three and twenty-eight cases in which it was successful. Later, Rosenthal adopted it in gastric catarrh and in atrophy of infants during the first year. He published the results in the *Nordisk Tidsskrift for Terapi*, 1905. They suffice to establish the use of malt soup at the Copenhagen clinic. It was thus prepared: Fifty grams of wheaten flour and one third litre of sweet milk were beaten and strained. In a separate vessel forty grams of malt extract (Denzon's) were dissolved in two thirds litre of water at 50° C. The two solutions were then mixed, and a teaspoonful of an eleven per cent. solution of potassium carbonate added. The mixture was placed on the fire, boiled without stirring, and poured into the nursing bottle. Soxhlet's sterilizing apparatus was used for three minutes. (The article does not state the quantity of sugar. Professor Esser says the proportion should be eighty grams to the litre.) The bottles are placed as soon as possible in the ice chest. (Esser's article may be found in a recent publication, *Thérapie an den Bonner Universitätsklinik*, p. 118, 1914.)

The difference between Keller's malt soup and Rosenthal's is that Keller employed 100 grams of malt extract instead of forty. The last formula is published in the *Medizinische Klinik*, 276-278, 1914, by Erich Müller and Ernst Schloss. It is as follows:

The vessels in which the mixture is made are filled to 330 c. c. with raw milk. Previously fifty grams of wheaten flour are boiled in three quarters litre of water for twenty minutes; this is poured into the first vessel, 100 grams of Loflund's malt soup extract added, and the whole filled up to 1,000 c. c. with tap water. The mixture is divided in five bottles and sterilized in Soxhlet's apparatus for two to three minutes.

According to Müller and Schloss, less sugar and malt extract are preferable for very young children, or instead of Soxhlet's sugar, an equal quantity of malt extract may be substituted. The change is particularly indicated in diarrhea. They also recom-

mend the addition of fifty grams of cream to increase the amount of fat, if the baby digests the malt soup satisfactorily.

The indications for the use of malt soup, according to Israel Rosenthal and Oerum (*Archiv für Kinderheilkunde*, 62, 169, 1914) are gastrointestinal catarrh and atrophy. They administered it to 242 babies; the mortality was 11.56. But two babies manifested signs of Barlow's disease. They were very ill nourished when admitted to the hospital. The inference—borne out by the charts of weight, etc.—is that malt soup was most beneficial.

Therapeutic Notes.

Thyroid Treatment of Certain Nervous Disorders.—C. W. Crawshaw, in the *Lancet* for May 30, 1914, points out that in many cases of nocturnal enuresis in children, notably in those showing rachitic characteristics, excessive blinking of the eyelids is a disagreeable concomitant. In two cases in which the author administered a thyroid preparation in conjunction with syrup of calcium lactophosphate, the symptom disappeared in a few days. In one of these cases, in which the drug was discontinued and not resumed for a few weeks, the blinking reappeared; it disappeared again, however, when the thyroid was again given. In another case, that of a girl about seven years of age, who was unable to stand and who had extensive paresis of the muscles of the left arm and back—a condition attributed to diphtheria—the administration of thyroid gland, one grain (0.06 gram) daily, with syrup of calcium lactophosphate, forty-five minims (3 c. c.) three times daily, was followed by a relatively rapid recovery of power in the affected muscles, the child regaining ability to walk without assistance in five weeks and improving physically to a marked degree.

Management of Cases of Insanity.—C. B. Burr, in his recently issued *Handbook of Psychology and Mental Disease*, lays stress on the fact that, almost without exception, cases of mental excitement do better in bed, in a quiet room, although it may prove a difficult matter to persuade an individual in a state of mental elation that he actually needs rest. Both in excited and depressed states there is often constipation and imperfect digestion, with autotoxemia, and for this no remedy is so good as calomel. After enough of it has been given to produce thorough results, effervescent salts—especially effervescent sodium phosphate—or aperient waters should be given continuously, if required to keep the bowels freely active. Rhamnus purshiana (cascara) the author deems practically valueless in the visceral torpor prevalent in mental diseases. The official compound cathartic pills or castor oil, in addition to salines, may, however, be used. In obstinate constipation, liquid petrolatum—one tablespoonful in orange juice night and morning—is of great service.

Depressant remedies employed for the purpose of subduing the patient often do harm. As a pure hypnotic, chloral hydrate has proved superior in Burr's hands to all other drugs, and has caused

neither a craving nor sleeplessness on withdrawal. A fifteen to twenty grain (one to 1.25 gram) dose should hardly be exceeded, but a few minims of fluidextract of hyoscyamus may be added. Any cardiac depression caused by it in cases with a feeble heart can often be counteracted with quinine. Rarely is there occasion to repeat the dose of chloral hydrate more than once three or four hours after the first dose. Paraldehyde, a practically danger free drug, may be substituted for chloral, and in a dose of one or two drams (4 to 8 c. c.), repeated in two hours if necessary, is likely to procure quiet, restful sleep. Sulphonmethanum (sulphonal) and sulphonethylmethanum (trional) are especially useful in neurasthenic states and in the agitated forms of manic depressive insanity. Opiates are warranted and useful only in acute agitation with great distress and where painful delusions lead to refusal of food and suicidal acts.

Tonics and remedies to promote tissue building are needed in the insanity. In exhaustive states quinine is indispensable, and may be given in two or three grain (0.12 to 0.18 gram) by mouth or rectum. Desiccated thyroid gland caused distinct improvement in a case of dementia præcox of the catatonic type under the author's observation. Five grain (0.3 gram) doses of an American preparation of thyroid clearly promoted composure and emotional stability. This remedy should be discontinued from time to time. Coca and caffeine are useful in painful emotional states, and the static electric breeze, applied just before bedtime, is of great value because of its soothing and hypnotic quality. For the neurasthenic headache a simple prescription of the elixir of ammonium valerate (N. F.) and aromatic spirit of ammonia is often useful. Prolonged baths in water at a temperature of 100° F.—the patient's body having previously been anointed with petrolatum—are very efficient in allaying excitement in asthenic manic depressive and dementia præcox cases. In parietic excitement, however, they have proved unsatisfactory in Burr's experience.

Treatment of Colitis in Infants.—Hutinel, in *Monde médical* for April 25, 1914, is stated to recommend that all fluids containing soluble antiseptics, such as phenol, boric acid, and sodium borate, be avoided in the treatment of colitis in children. If the stools are foul smelling the following combination may, however, be employed as a detergent enema:

R Aque hydrogëni dioxidi, 5iiss (50 grams);
Sodii phosphatis, gr. xlv (3 grams);
Sodii chloridi, gr. lxxv (5 grams);
Sodii bicarbonatis, gr. viiss (0.5 gram);
Aque bulliatæ, Oii (1 litre).
M. et ft. solutio.

The best procedure for combating bacterial development in the intestine in these cases is to give a purgative immediately after feeding has been stopped. Preferable to calomel are castor oil and sodium sulphate. In cases with marked tenesmus, a decoction of ipecacuanha may be given with advantage in tablespoonful doses every two hours, and in dysenteric forms, irrigations with a solution of silver nitrate or potassium permanganate are sometimes serviceable.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal
and The Medical News.*A Weekly Review of Medicine.*

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Address all communications to

A. R. ELLIOTT PUBLISHING COMPANY,
Publishers.

66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transpor-
tation through the mail as second class matter.

Cable Address: Medjour, New York.

NEW YORK, SATURDAY, JANUARY 10, 1913.

OUR RELATIVES, THE PLANTS.

The interesting experiments on the action of drugs on plants of Professor J. C. Bose, of Calcutta, novel rather by their care and accuracy with which they were carried out than by their actual nature (*Proc. Roy. Soc. Med.*, November, 1914), lead him to speak of the pulvinus of *Mimosa* and similar structures in other plants as "nerves," although Sir Lauder Brunton, in the discussion which followed the reading of Professor Bose's paper, objected forcibly to the term. To be sure, the rate of transmission of irritative impulses in the plant is only some twenty or thirty mm. a second, whereas in animal nerve the rate is twenty-seven metres, but the analogies discovered by the experimenter were sufficiently remarkable to warrant the use of the term save in the most restricted sense. Many supposed differences between the animal and the plant organism, Professor Bose insists, do not exist; the phenomena of contractile response are alike; a plant exhibits under excitement a responsive electrical variation of the same sign as in the animal; impulses are transmitted through conducting tissues in the plant very like nervous impulses in the animal; there are rhythmic tissues in the

plant which react under external conditions as in the animal.

The importance of Professor Bose's experiments, however, depended on the unexpected effect on the plant of various stimulating and depressing agents, the constant electric current, various drugs, narcotics, and poisons. The effects of loads and temperature are similar in plant and animal, the former showing fatigue and regaining its "equanimity"—as Professor Bose calls it, perhaps unconsciously—under rest; electric response ceases on the death of the plant; the impulse under stimulation in the plant was plainly physiological and not merely mechanical; a genuine paralysis can be caused by cold. An unexpected finding was that the plant, far from flourishing in an atmosphere of carbon dioxide, is suffocated therein just like a human being. Poisons, e. g., copper sulphate, gradually abolish conducting power in the plant, and the effect is greater with a more virulent poison. Ether induced a transient exaltation, followed by depression. Acids and alkalis act on plant pulsation as they do on the cardiac impulse. To conclude, Professor Bose avers that the plant is much nearer to us than we ever thought. It is not a mere mass of vegetative growth, but its every fibre is instinct with sensibility. We find it answering to outside stimuli, the responsive twitchings increasing with the strength of the blow that impinges on it. We are able to record the throbbings of its pulsating life and find these wax and wane according to the life conditions of the plant, and cease with the death of the organism. The whole plant is made one by conducting threads, so that the tremor of excitation initiated in one place courses through the whole; and this nervous impulse, as in man, can be accelerated or arrested under the several actions of drugs and poisons. In these and many other ways the life reactions in plant and man are alike; and thus, through the experience of the plant, it may be possible to alleviate the sufferings of man.

Henceforward, perhaps, physiological pharmacy will begin with a study of the action of a given drug on plant tissues. The results are going to be, not only of importance, but of fascinating interest; kindred questions will present themselves, whether for example, the garden plant is more sensitive than the wild flower; whether it comes to expect watering and other attentions at regular hours, etc. Does it react to loud, coarse voices, and does it resent unkind handling? Does it become temperamental under cultivation? Perhaps it will be explained why some people are more successful with plants than others, equally ambitious and careful. Are we to have a plant psychology?

MANAGEMENT OF PRISONS FROM THE STANDPOINT OF HEALTH AND HUMANITY.

In one of his letters, the late Thomas B. Reed, of Maine, as we learn from his recent biography by McCall, wrote: "The main object of punishment is not to inflict pain, but by means of pain to deter the criminal and other members of society from committing crimes." During the past few years a wonderful change has been made in the treatment of prisoners, and, instead of a harshly punitive and repressive method, there has been inaugurated a system the object of which is to secure the confidence of the criminal, to improve his condition, mentally, morally, and physically, during the period of his incarceration, and to return him to the world an industrious and useful member of society. A considerable portion of this class are defective either mentally or physically, often in both respects. There are some, it is true, whose mental deficiency is such as to render hopeless any idea of permanent reformation, and it would be the part of wisdom to treat these in the same manner as the chronic insane and, by their retention in custodial care for an indefinite or even lifelong period, prevent their further depredations upon society. In the case of the others, however, a vast amount of good can be accomplished, and this is now the sincere aim of those in charge of our penal institutions.

One very serious drawback to securing the best results as regards the physical condition of the prisoners is the terribly overcrowded and unsanitary state of our prisons. This is notably the case at Sing Sing, where the conditions are unspeakably bad. Some of the cells, which are also dark and extremely damp, are only a little over three feet wide, and into them two men have to be crowded. In an address at a recent meeting, Thomas Mott Osborne, the new warden, remarked that it was a crime against humanity to put men into such cells, and that in them tuberculosis was being bred so rapidly that it was really an unthinkable menace to the society into which the prisoners must some day return. It is gratifying to learn that in the management of the institution the old order of things has been completely revolutionized, and that violations of the prison rules are now almost unheard of; so that whereas formerly fifteen or twenty men were daily consigned to the dark cells, there has not been recently a single violation serious enough to warrant such punishment. A noteworthy innovation has been the establishment of a self government court, consisting of five prisoners who sit as judges in all cases, whether the charges are preferred by prison officials or by delegates elected by the convicts from their own ranks; while the accused have the right

of appeal to a higher court composed of the warden, the head keeper, and the prison physician.

President Solomon, of the State Prison Commission, has deeply deplored the inexcusably overcrowded condition of the three State prisons, but he announces that the buildings of the new prison at Comstock are models of modern sanitary construction. Dr. Frank L. Christian, assistant superintendent of the State reformatory at Elmira, who is recognized as one of the leading penologists of this country, has written a comprehensive review of the whole subject of present day management of the prison, which he regards both as a hospital and a school. Only one of the reforms he advocates can be mentioned, viz., that all large prisons should have on the regular staff a psychologist and a dentist, beside the prison physician, and that there should be a consulting staff composed of experts of the highest ability, surgeons, pathologists, alienists, and others.

A NEW DISEASE IN MAN.

The prophecy of McCoy and Chapin that the plaguelike disease discovered by them in ground squirrels in California would sooner or later make its appearance among human beings, seems to have been fulfilled. These investigators found lesions closely resembling those of plague, but due to a distinct organism. They isolated and described *Bacterium tularense* as the specific cause. Owing to the fact that the virus had a marked virulence for monkeys, they were led to believe that man would sooner or later become infected. Now comes the report from Cincinnati of two cases of human infection with *Bacterium tularense*. In the *Public Health Reports*, December 18, 1914, Dr. William B. Wherry, professor of bacteriology in the University of Cincinnati, describes two cases of the disease as he observed and studied them. One of the cases was that of a meat cutter in a cheap restaurant, the other that of a farmer's wife. In both patients the course of the disease was marked by ulcerative conjunctivitis, involvement of the preauricular and cervical glands, fever, and pronounced prostration. The illness of the farmer's wife lasted over two months. Wild rabbits were suspected as the source of the infection, as quantities of them are sold in the markets, and hunters had reported that in Kentucky and Indiana they were dying in large numbers. Two rabbits found dead on a farm in Indiana were examined and found to have been victims of the plaguelike disease. The case of the farmer's wife came from a place only four miles from where these rabbits were found. These people had handled and cut up wild rab-

bits, but experimental investigations with animals make it seem likely that the disease may be transmitted by more indirect methods. It has already been shown that it is readily transmissible between rodents by either the stable fly or the common house fly, and we may expect further investigations to give us more definite information as to the danger to man from these sources.

In the meantime, our knowledge of the nature and gravity of the disease as shown in the two reported cases, is hardly sufficient to warrant an unreasonable fear of eating thoroughly cooked rabbits.

PRESCRIPTION WRITING.

Notwithstanding the advances in sanitation, preventive medicine, balneology, and mechanotherapeutics, there is still need for an occasional prescription. Consequently some interest will be felt by physicians in a discussion, What Instruction Ought Medical Colleges to Give in Pharmacology and Therapeutics? published in the *Quarterly of the Federation of State Medical Boards of the United States*, 1, 4. The viewpoint of the pharmacist, presented by Dr. Bernard Fantus, Professor of Pharmacology and Therapeutics in the University of Illinois, concerns itself principally with the prescription, and presents an interesting tabulation of the results of the study of 10,000 prescriptions collected by 100 pharmacists. Of these prescriptions, thirty-six per cent. were written in poor English, eighteen per cent. in poor Latin, four per cent. were almost illegible, forty-six per cent. contained less than three ingredients, while eleven per cent. contained more than five, twenty-four per cent. contained proprietary preparations, two per cent. contained incompatible substances, and one per cent. showed errors or overdoses. The fact that only four per cent. were almost illegible is a refutation of a traditional joke. A most hopeful showing is made as regards incompatibility, though modern therapeutists would be inclined to balk at the eleven per cent. containing more than five ingredients. But even if we include polypharmacy among the major faults, the record is not a bad one, not nearly so bad as some critics have led us to expect; in fact, surprisingly good in view of the lack of practice by the medical student in writing prescriptions. Time is valuable in a hospital, but it is a pity that the ready made mixtures in general use interfere with the writing of a special prescription for each patient. Strictly speaking, scientific therapeutics demands individual mixtures. If it were possible for visiting physicians and interns to carry out such an ideal plan of prescribing, the profession would soon make an even better showing in prescription writing.

THE COUNTRY SCHOOL.

The little country school has for many years been celebrated in song and story, but the glamour of romance is gradually giving way to the illumination of exact science. Our interest is no longer in the intellectual achievements of those who studied there, but is now centred in the school itself, chiefly on account of its being a possible focus of infection for the surrounding neighborhood.

A recent article in the *Public Health Reports* by Bailey, concerning a sanitary inspection of the rural schools of east Tennessee and northern Georgia, gives an insight into existing conditions that is far from agreeable. Similar infractions of the laws of hygiene probably have occurred to a greater or lesser degree in the rural districts of the northern States. In them, however, the question is not of quite the same importance, as the danger is less on account of the cold winters, during which time the infectious agents are destroyed.

In the South the chief element of danger is hookworm disease, and as it is spread by means of feces the disposal of excreta is an all important matter of hygiene. The disregard of the decencies of life and, in some cases, the lack of privies of any kind, is indeed a startling manifestation of local so called civilization. The principal of one school remarked, "We do not have to dispose of excreta here—the hogs are our scavengers." One would not expect much development of the higher side of existence under the direction of such a person. If in addition to the foregoing there is associated a water supply, not only insufficient, but also not above the suspicion of contamination, the result to the community will be far from favorable. In a few instances surface outhouses were situated at higher elevations than the wells, and surface drainage was directly toward them.

As might be expected, when such evident evils were not corrected there were many other, possibly lesser ones, which were also disregarded. Ventilation in many of the schools was almost nonexistent, and in one the air was drawn from the class rooms by one series of flues to the furnace, where it was heated and returned by another set. A fine atmosphere for study! In some the lighting was bad, in others there were no facilities for washing the face or hands, while again the seats and desks bore little relation to the size of the pupil.

It is very evident that the chief hope of improvement lies in a better education of the medical student in matters of hygiene. The establishment of a degree of Doctor of Public Health is a marked advance, but that is not sufficient; the regular graduate should be so equipped that he can be a useful member of a local board of health.

THE RED CROSS MAGAZINE BECOMES A MONTHLY.

With its issue for January, 1915, the *Red Cross Magazine* changes from a quarterly to a monthly publication. This, the official publication of the American Red Cross association, champions the cause of sick, wounded, and destitute peoples of all nationalities and of all religious sects or creeds, wherever they may be. The monthly will not be as large as was the quarterly, but will make up in quality what it lacks in quantity. It should continue to be an interesting, instructive, attractively illustrated humanitarian publication.

The annual membership fee, which embraces subscription to the magazine, will remain the same—one dollar. The American Red Cross is the Government's official relief organization.

THE TAX ON DENTIFRICES.

In providing a stamp tax to meet the needs for an emergency revenue, a law was enacted last year imposing a tax on a wide variety of substances, including perfumery, cosmetics, and dentifrices. In view of the recognized importance of oral hygiene, it seems a mistake on the part of the lawmakers to impose a tax on preparations which are used in the care of the mouth and teeth. A number of well known physicians and dentists have begun a campaign to have this portion of the tax law rescinded, and it is not improbable that their efforts will be successful.

News Items.

Changes of Address.—Dr. Antonio Caponigri, to 359 West Forty-second Street, New York.

Dr. Constantine Logotheti, to 256 West Forty-fourth Street, New York.

The Rush Lecture.—The ninth Rush Society Lecture will be given in Philadelphia on Saturday, January 23d, by Dr. Lafayette B. Mendel, of Yale University, on Nutrition and Growth.

The Annual Dinner of the Alumni Association of the Knickerbocker Hospital will be held at the Hotel McAlpin, Thursday evening, February 11th, at 7:30 o'clock. Last year's dinner was a very successful affair, and the committee in charge hope to make this year's reunion and dinner even more successful. All who wish to attend should communicate at once with Dr. J. E. Lumbard, Graham Court, 116th Street and Seventh Avenue, New York.

The Army Medical Corps in Peace and in War was the subject of an address given by Colonel L. Mervin Maus, of the Medical Corps of the United States Army, at a special meeting of the Harlem Medical Association, held on Wednesday evening, January 13th, under the presidency of Dr. Seymour Oppenheimer. Lantern slides were shown illustrating the various phases of the work of the corps, particularly the results of the sanitary work performed in Cuba, Porto Rico, the Canal Zone, and the Philippine Islands.

The Relief Fund for Belgian Physicians.—During the week ending January 9, 1915, the following contributions to the fund were received: E. G. M., \$10; L. M. W., \$5; A. T., \$10; J. G. R. M., \$25; J. C. T., \$25; L. C. F., \$10.15; E. T. F., \$10.15; F. W. S., \$10; G. L. H., \$25; G. E. L., \$5; E. E. K., \$10; A. M. C. O., \$100; D. S. M., \$10; C. M. B., \$1; M. C. M. S., \$25; H. M. S., \$10; E. H. M., \$5; total, \$296.30. Contributions previously reported amount to \$662.50, making a grand total of \$958.80. Dr. F. F. Simpson, of Pittsburgh, is treasurer of the fund.

Personal.—Dr. John J. Dowling has been elected superintendent of the Boston City Hospital, to succeed Dr. John H. McCollom, who has been retired on a pension.

Dr. W. Gilman Thompson was elected president of the New York Botanical Gardens at the annual meeting of the board of directors, held on January 11th, and Dr. Lewis Rutherford Morris was elected a member of the board of managers of the same institution.

The Health Department's Public Lectures.—During the coming week the following lectures will be given under the auspices of the Bureau of Public Health Education of the Department of Health: Tuesday, January 26th, The Important Part Done by Nurses in the Work of the Bureau of Infectious Diseases, by Miss Elizabeth Gregg; Wednesday, January 27th, Communicable Diseases, by Dr. John S. Billings; Thursday, January 28th, Health Department Laboratory Products and Their Uses, by Dr. William H. Park; Friday, January 29th, The Educational Duties of the Food Inspector, by Dr. Haven Emerson.

Cincinnati Academy of Medicine.—The following officers were installed at the banquet held by the academy on the evening of January 11th: President, Dr. John W. Murphy; first vice-president, Dr. Charles T. Souther; second vice-president, Dr. Nora Crotty; secretary, Dr. G. Strobach; treasurer, Dr. A. G. Drury; librarian, Dr. Archibald I. Carson; trustee, Dr. W. D. Haines; censor, Dr. J. Ambrose Johnston; delegates to the State Medical Association, Dr. Oscar Berghausen, Dr. Kennon Dunham, and Dr. W. R. Abbott; alternates, Dr. G. F. McKim, Dr. William M. Doughty, Dr. J. Louis Ransohoff, Dr. J. Edward Pirrung, and Dr. Carl Hiller.

Health Department Activities Discussed Before the Eastern Medical Society.—At a meeting of the Eastern Medical Society, New York, held on Friday, January 8th, members of the Department of Health of the City of New York described the work of the department to the members of the society. In a symposium on public health the heads of the various bureaus briefly sketched the activities of each bureau stating the aims and principles which govern them. Numerous questions were asked the department representatives, and the discussion which followed resulted in a better understanding of the methods and purposes of the present administration.

The Brooklyn Medical Association.—A stated meeting of this association was held on Wednesday evening, January 13th, under the presidency of Dr. James M. Downey. The paper of the evening was read by Dr. Thomas A. McGoldrick on Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis. Officers for the year 1915, were elected as follows: President, Dr. Frederick C. Paffard; vice-president, Dr. J. Sturdivant Read; recording Secretary, Dr. George J. Doyle; corresponding secretary, Dr. Adolph Wieber (re-elected); treasurer, Dr. Gordon Gibson (re-elected); Dr. James M. Downey, the retiring president, was elected a member of the executive committee.

To Abate the Tax on Dentifrices.—A committee of dentists and physicians has been formed in New York whose purpose it is to petition Congress to revoke that part of the emergency revenue law which imposed a stamp tax on dentifrices. The following are members of the committee: Dr. Herbert L. Wheeler, of the College of Dental and Oral Surgery; Dr. Francis Delafeld, Dr. S. S. Goldwater, Health Commissioner; Dr. Thomas Darlington, Dr. Ernst J. Lederle, Dr. William S. Bainbridge, Dr. Holbrook Curtis, Dr. William Carr, Dr. Victor Hugo Jackson, Dr. O. Victor Limerick, Dr. William C. Deane, Dr. Frank E. Miller, Dr. Herbert Pease, Dr. William Gies, and Dr. Edmund Prince Fowler.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, January 18th, Philadelphia Clinical Association, Medical Society of the Woman's Hospital, Episcopal Hospital Clinical Society; Tuesday, January 19th, West Branch of the County Medical Society (business meeting), Section in Otolaryngology and the College of Physicians, Mount Sinai Hospital Clinical Society; Thursday, January 21st, Section in Ophthalmology of the College of Physicians, Northeast Branch of the County Medical Society; Friday, January 22d, Neurological Society, Northern Medical Association, South Branch of the County Medical Society.

Improvements in Comfort Stations in New York.—

Prior to 1914 there was only one sanitary pay toilet in any of the comfort stations in Manhattan, and that one was built as an experiment. It proved to meet a demand, and since the beginning of this year the matter has been taken up and sanitary toilets have been established in four other comfort stations. Several sanitary features have been added to these toilets, including a towel, soap, etc.; another convenience is the presence of vending machines for sanitary napkins at five cents each in the women's side of nine comfort stations throughout the city. These machines will be placed in other stations as soon as the necessary arrangements can be made.

Medical Society of the County of Orange, N. Y.—

This society met in annual session in Goshen, N. Y., on Tuesday, January 5th, and elected the following officers for the year 1915: President, Dr. E. M. Schultze, of Middletown; vice-president, Dr. W. W. Davis, of Chester; treasurer, Dr. H. J. Shelley, of Middletown (reelected); secretary, Dr. B. C. Hamilton, of Goshen. The censors for 1915 will be Dr. D. T. Condict, of Goshen; Dr. Robert Kearns, of Middletown; Dr. D. B. Hardenburgh, of Middletown, and Dr. R. H. Rulison, of Monroe. It was decided to hold only three meetings a year hereafter, instead of four, the dates of meeting to be the first Tuesday of May, August, and December.

The Gorgas Medal, to be given yearly in honor of Surgeon General Gorgas, has been established by the Medical Reserve Corps Association, New York State Division. This medal is open to competition to members of the Medical Corps of the United States Army, the Medical Reserve Corps of the United States Army, and to members of the medical corps of the organized militia. Officers may submit papers on any subject of a medicomilitary nature.

General Gorgas has appointed the following board of officers to act upon papers submitted: Colonel Charles Richard, Lieutenant Colonel Champe C. McCulloch, Jr., and Major Eugene R. Whitmore, Army Medical Corps. These officers are members of the faculty of the Army Medical School and will have sole authority to appoint the time that papers are to be submitted, and to pass upon their merits. All inquiries should be addressed to one of these officers.

The Western Reserve University Expedition to the War Zone.—

Dr. George W. Crile, of Cleveland, with a corps of assistants, sailed from New York, December 30th, to take charge of one of the services in the American Ambulance Hospital in Paris. The expedition will be financed by the trustees and friends of the university and the Lakeside Hospital, Cleveland. The present capacity of the American Ambulance Hospital is 450 beds, divided into services of 150 beds each, and the medical board has suggested that several of the leading medical schools of the United States send out staffs to take charge in succession of one of the hospital services for periods of three months each, the corps from the several universities following one another without interruption of service. Doctor Crile was requested to be the leader in the proposed plan. Among those who accompanied him were Dr. Samuel L. Ledbetter, Dr. Edward F. Kieger, Dr. Le Roy B. Sherry, Dr. Lyman F. Huffman, and Dr. Charles W. Stone, of Cleveland, and William J. Crozier, Ph.D., of Harvard University.

New Officers of the College of Physicians of Philadelphia.—

At the annual meeting of the college, held on Wednesday, January 6th, the following officers were elected: President, Dr. James C. Wilson; vice-president, Dr. Richard H. Harte; censors, Dr. James Tyson, Dr. William W. Keen, Dr. George E. de Schweinitz, and Dr. Thomas R. Neilson; secretary, Dr. Francis R. Packard; treasurer, Dr. John B. Roberts; honorary librarian, Dr. Frederick P. Henry; additional councillors, to serve until January, 1918, Dr. Henry R. Wharton and Dr. William Zentmayer; committee of publication, Dr. G. G. Davis, Dr. Thompson S. Westcott, and Dr. Walter G. Elmer; library committee, Dr. William J. Taylor, Dr. George W. Norris, Dr. Astley P. C. Ashurst, Dr. Francis X. Dercum, and Dr. Charles W. Burr; committee on Mutter Museum, Dr. Henry Morris, Dr. George P. Müller, and Dr. George Fetterolf; hall committee, Dr. John K. Mitchell, Dr. Thomas H. Fenton, Dr. B. Alex. Randall, Dr. E. Hollingsworth Siter, and Dr. J. Norman Henry; committee on directory for nurses, Dr. Thomas G. Ashton, Dr. Frederick Fraley, and Dr. Arthur Newlin.

Hartford, Conn., Medical Society.—At the annual meeting of this society, held on the evening of Monday, January 4th, the following officers were elected: President, Dr. F. T. Simpson; vice-president, Dr. Joseph E. Root; secretary, Dr. A. H. Griswold; assistant secretary, Dr. Amos T. Harrington; treasurer, Dr. Philip D. Bunce; librarian, Dr. Walter R. Steiner. Dr. E. H. Ingalls was elected to the board of trustees, Dr. J. B. McCook to the executive committee, and Dr. Levi B. Cochran to the board of censors. Reports of the various committees were read and an address was given by Dr. E. J. McKnight, the retiring president. Four applicants for membership were admitted to the society.

Polk County, Iowa, Medical Society.—At the annual meeting of this society, held December 22, 1914, at Des Moines, Iowa, Dr. Charles Spencer Williamson, of Chicago, was the guest of honor. Several interesting cases were demonstrated by Doctor Williamson at the Iowa Lutheran Hospital in the afternoon, and in the evening there was a banquet at the Savery Hotel. After dinner, the president, Dr. Granville N. Ryan, made a brief address in which he reported his experiences in European clinics when abroad as the delegate of the society to the International Medical and Surgical Congress. Doctor Williamson followed with an interesting address on Some Misconceptions Concerning Diseases of the Heart, and Suggestions for their Remedy. The following were elected officers for 1915: President, Dr. F. E. V. Shore, of Des Moines; vice-president, Dr. Channing Smith, of Granger; Dr. Thomas Duhigg, of Des Moines, reelected secretary; Dr. E. B. Mountain, of Des Moines, reelected treasurer; Dr. Granville N. Ryan, censor. The society ended the year in a prosperous condition. There are one hundred and seventy-three members in good standing.

American Sanatorium Association Condemns Consumption "Cures."—The American Sanatorium Association, consisting of the physicians and other directing officers of all the large tuberculosis sanatoriums in the United States and Canada, at its annual meeting held at the Massachusetts State Tuberculosis Sanatorium, Middleboro, on December 16, 1914, heartily endorsed the campaign now being carried on against the patent medicine evil and quackery. The text of the resolution unanimously adopted by the association is as follows:

WHEREAS, The members of this association constantly encounter patients suffering from tuberculosis who have lost valuable time dosing themselves with various nostrums advertised to be beneficial in tuberculosis, and

WHEREAS, We know, from experience that all of the many advertised medicines and other forms of special treatment recommended by unscrupulous quacks are absolutely worthless, and

WHEREAS, We notice with satisfaction that a campaign against the patent medicine evil and quacks has been inaugurated; be it therefore

Resolved, That the American Sanatorium Association fully endorses this propaganda, and be it further

Resolved, That this association condemns the publication by any newspaper or lay periodical of advertisements of patent medicines or quick remedies and devices, purporting to be beneficial in tuberculosis.

Mortality for Week Ending January 9, 1915.—The most noteworthy feature of the mortality for the week just passed was the tremendous increase in the mortality from all causes as well as that from certain individual causes, especially acute respiratory diseases. The death rate for the week was 15.40 against 14.50 for the corresponding week in 1914, an increase of 0.90 of a point per 1,000 of the population, in the absolute figures, 157 deaths and in the relative figures, 100 deaths.

There were 347 deaths reported from acute bronchitis, lobar pneumonia, and bronchopneumonia against 250 deaths from these causes in the corresponding week of 1914.

In looking for the factor which caused this considerable increase, it was natural to expect that the deaths from influenza would be correspondingly higher than in the corresponding week of 1914. This was not the case, only 10 deaths having been reported from influenza against 14 in the latter period. It is possible that we have influenza with us now in a form not readily recognizable by the physicians. Certainly the factor causing the increased mortality must have been general in its prevalence, because certain causes have also shown an increased mortality; this is especially true of the organic heart diseases, pulmonary tuberculosis, other forms of tuberculosis, and Bright's disease of the kidneys, all the figures from which were considerably above that in the corresponding week in 1914.

Pith of Current Literature.

FERMENTFORSCHUNG.

November 5, 1914.

Results of Comparing the Tests for Protective Ferments, by Emil Abderhalden.—Methods previously used are capable of great improvement. The most important requisite is a standard substrate, that is, a substance, whether nucleoprotein, fat, or phosphatide, which can be used in a given case instead of the corresponding tissue of the body. It was inevitable that much must be accomplished and many comparisons of tests must be made before precision is attained. The idea of the comparison is to throw side lights on the different reactions. Which is the best? The author's standpoint is not easy to define. He appears to place the dialysis method first with its ninhydrin reaction, and estimation of nitrogen and aminonitrogen. If there is enough dialysate, the biuret reaction is practical. There are two other methods—the optic and the interferometric. Substrates may be either moist or the powder of organs. Results of these different tests are becoming constant.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

December 8, 1914.

Sterilization of Morphine Solutions, by Ernst Deussen.—Morphine solutions cannot be sterilized by heat under pressure as the content of the alkali is increased. The best method of sterilizing is by exposing for about thirty minutes to steam coming from boiling water. The morphine solution is put into wide mouthed glass flasks which hold about thirty c. c. and which are loosely stopped with glass stoppers. The pure white morphine solutions become yellow after sterilization.

Salvarsan Serum, by A. Stuehmer.—The effect of reduction and oxidation on salvarsan serum was studied. Sodium hydrosulphite was used as a reducing substance and pure oxygen as an oxidizing agent. Normally the blood serum of salvarsanized animals when heated is changed so that it has a distinct action on the trypanosomes *in vitro*. Reduction of fresh serum does not affect its activity, but reduction of previously heated blood serum decreases its activity so that it is no more active than ordinary fresh serum. Prolonged contact with oxygen cannot take the place of heating. The increase in activity brought about by heating is probably due to the fact that salvarsan oxides are freed. These can be reduced and rendered inactive by reducing agents.

Operative and X Ray Treatment in Benign and Malignant Tumors of the Uterus, by H. Fehling.—Fibromata uteri are probably due to a dysfunction of the ovary. The most important symptom is hemorrhage, which may be present as protracted menstruation or frequent menstruation. The mortality as the result of operation is about two to three per cent. Disadvantage of treatment with the Röntgen ray is the fact that the treatment is prolonged and not practical for working people. The treatment may last for months and there is always the danger of headache, light fever, and pronounced bleeding appearing during its course.

Predisposing factors in the production of carcinoma are frequent pregnancies, getting up too soon after labor, endometritis and lacerations of the cervix. The lowest mortality rate as the result of operation is about ten per cent. Radium treatment and the treatment with mesothorium have some advantages over the x ray in the treatment of carcinoma, but they are undoubtedly more dangerous. If the action of radium or mesothorium is too strong, the cancer spreads more rapidly because the cancer cells are stimulated. A case cannot be considered as cured until five years have elapsed after the time of operation, during which the patient has been free from recurrence. Radium and mesothorium can be used only in institutions because of the high price, but they represent the best palliative treatment at the present time.

Action of Copper Salts on the Growth of the Tubercle Bacillus, by the Duchess von Linden.—Copper potassium tartrate in the dilution of one in 10,000 and copper potassium cyanide in the dilution of one in 50,000 inhibit the growth of the tubercle bacillus. The action is similar whether the nutrient medium contains albumin or not, but there is a distinct difference when the copper solution is added in a concentrated or in a dilute form. If added in a concentrated solution the distribution of the copper solution throughout the nutrient medium is not equal and the result is not as good. The poisonous action of copper on the tubercle bacillus is greatest when it is given intravenously. The most poisonous solutions are those which combine readily with the coloring matter of the blood. As large a dose as 0.1 gram copper may be given intravenously. This makes a dilution of one in 50,000, which is twenty times as strong as is necessary to prevent bacterial growth, and twice as strong as is used to kill bacteria in the culture medium. Copper therapy has given the best results in surgical tuberculosis and in tuberculosis of the skin. It has also given good results in the treatment of pulmonary tuberculosis and is not as dangerous as the treatment with gold preparations.

BULLETIN DE L'ACADÉMIE DE MEDECINE.

December 1, 1914.

Treatment of Tetanus by Baccelli's Method, by Paul Sainton.—A series of twenty-two cases is reported in which Baccelli's method was applied, at first cautiously, later with greater freedom, the procedure ultimately carried out being as follows: Twice daily an injection of forty to fifty c. c. of a two per cent. phenol solution was given subcutaneously, in the vicinity of the wound whenever possible, otherwise in the thigh or abdomen. The patients thus each received 1.6 to two grams of phenol a day, and in two, the injections were continued for nearly a month. The only untoward effects noted were local erythema in two cases and an accumulation of aseptic, serous or seropurulent fluid where numerous injections had been given in the thigh. No signs of general intoxication, such as dark colored urine, were ever noticed. Kept very quiet and in semidarkness, the patients were also given, morning and evening, an enema containing six to eight grams of chloral hydrate, one or two yolks of egg, and 250 grams of milk. Six

patients recovered from the tetanus, though two of these succumbed soon after to other conditions; two of the cases with permanent recovery had been of extreme gravity. That the administration of phenol is of value seemed clearly proved in at least one case, in which a relapse promptly took place when the phenol was temporarily discontinued, and improvement again followed when the drug was resumed. Elimination of the phenol was found to be very slow, and the drug is credited by the author with a distinct microbicidal action in tetanus. Stress is laid upon early treatment, and upon dysphagia without local cause and contraction of the wounded area as premonitory indications of the disease.

PRESSE MÉDICALE.

November 26, 1914.

Antityphoid Vaccination, by H. Bousquet.—A report is given of the procedure followed and results obtained in vaccinating 50,000 soldiers in the territory of Belfort, France, against typhoid fever, the water supply in this district having been found unsafe. The injections were given on the posterior aspect of the shoulder, above the axillary fold, the loose cellular tissue at this point affording a favorable site for introduction of the fluid. Local antiseptics with tincture of iodine was practised. It was found possible for three surgeons to vaccinate as many as one thousand men in an hour. In not a single case were serious untoward effects on the general system observed; men with manifest tuberculosis or other febrile conditions were excluded from the vaccination. Local complications were limited to edema of the arm and temporary recurrence of eczema. The prophylactic value of the procedure is shown in a chart exhibiting the number of admissions of typhoid cases in a hospital; the number rapidly fell from ten to one or two daily as the men in the district were vaccinated. Bousquet considers it advisable to vaccinate previously unvaccinated men already on the firing line during the periods in which they are relieved by other troops.

REVUE MEDICALE DE LA SUISSE ROMANDE.

November, 1914.

Direct Ventral Fixation of the Uterus, by M. Muret.—Experience in 225 cases of hysteropexy, performed by various methods, leads Muret to recommend low, superficial fixation of the uterus in young women with displacement of this organ. In the procedure he now employs, an incision three or four cm. long is made vertically just above the symphysis pubis, the recti are separated at the linea alba, the peritoneum is opened, the uterus drawn up to the wound, and two silk threads are passed superficially through the anterior uterine wall, the first just below the insertions of the round ligaments and the second one and a half cm. below the first. The points of entrance and emergence of each thread are only two cm. apart. The ends of the two threads are then passed on either side through the parietal peritoneum, the rectus, and the aponeurosis covering the latter, as near to the symphysis as possible, and the threads finally tightened and the wound is closed in layers. By this method the uterus was found to

preserve nearly all its normal mobility, the fundus especially being absolutely free. Tracing thirty-one cases in which altogether thirty-eight pregnancies followed this variety of ventrofixation, Muret found but three premature births and seven miscarriages, i. e., about the average number in pregnancies in general. Labor in no instance exceeded normal limits in duration, no marked dystocia developed, and involution was always rapid. No dragging pains were noted toward the conclusion of pregnancy, nor any of the difficulties in labor generally brought forth as arguments against ventrofixation, but which the author considers merely the results of improper performance of this operation.

Perforation of the Gallbladder Simulating Duodenal Ulcer, by C. Perrier.—Report is made of the case of a woman aged thirty-three years who had been suffering for five months from attacks of gastric pain beginning regularly three hours after meals, unaccompanied by vomiting, and relieved by ingestion of food—suggesting duodenal ulcer. There was pronounced loss of weight, with anorexia and constipation. The condition grew slightly better under treatment, but one evening symptoms of perforation suddenly appear d. Celiotomy revealed bile free in the peritoneal cavity, and the gallbladder thickened, red, and slightly adherent to the pylorus and duodenum, which, though thickened and harder than normal, showed no perforation. On the surface of the gallbladder facing the duodenum was found an opening three to four mm. in diameter. The gallbladder was incised and emptied of calculi, surrounded with gauze packing, and drained. Gradual recovery followed.

RIFORMA MEDICA.

December 15, 1914.

Artificial Pneumothorax, by P. E. Livierato.—Recent observers are more and more inclined to the opinion that it is not necessary greatly to raise the endopleural pressure, nor completely to obliterate the function of the lung, in order to obtain good results in pneumothorax. In addition to compression and immobilization of the lung, other factors must be considered; it has been shown that simple introduction of nitrogen into the pleural cavity produces an improvement in the patient's condition, with diminution of fever. This improvement occurs even when the endopleural pressure is still negative, and the lung fully expanding. Some, as Cantani, think that the nitrogen is absorbed, and thus exerts a beneficial action on the morbid process. Others, as Pietro and Pagano, are of opinion that stimulation of the pleura by the gas causes the endothelium to produce antitoxic and immunizing substances. The writer has, for over a year, in his clinic in Genoa, used nitrogen saturated with the vapor of eucalyptol, thymol, and pinol. This medicated mixture was well tolerated, and gave beneficial results in every case. His opinion is that the antitoxin production explanation is not satisfactory, and advances the theory that the lymph exchange between the visceral and parietal pleura allows, in diseased conditions, the entrance of bacteria and toxins into the general circulation by this route. The cutting off of this lymph circulation in artificial pneumothorax localizes the tuberculous condition in the lung, and

prevents the absorption of toxins, thus accounting for the lowering of fever and diminution of the phenomena of intoxication. The mechanism then is an interruption of the lymphatic current from the lung, with inhibition of the admission into the circulation of fever producing and toxic substances, and production of lymph stasis in the lung. Therefore bilateral pneumothorax should be practised in affections of both lungs.

Special Mechanism of the Action of Nitrogen in Artificial Pneumothorax, by A. Cantano and G. Arena.—From their experience with the operation, they are unable to decide which is the most important factor in the action of nitrogen; whether it is the mild irritation with resulting proliferation of connective tissue, or the unfavorable action of the gas on the growth of the tubercle bacilli, or, finally, the interference with lymph circulation between the lung and pleura with consequent lymph stasis.

Infantile Tetany of Parathyroid Origin, by A. Pepere.—Some syndromes of tetany may be referred to parathyroid insufficiency. There has been demonstrated a transitory fetal parathyroid tissue called parathyroid thymus, the existence and the function of which explain the precocious parathyroid symptoms followed later by tetany.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

December 14, 1914.

Exemption from Military Service of Undesirables, by A. Espina y Capo.—It is important to weed out undesirables from armies, especially in war time. Sickness is one of the greatest factors in weakening the effectiveness of an army. He refers particularly to the lighting up of tuberculous processes under war conditions in those with a predisposition to the disease.

Local Anesthesia in Labor, by M. Munos.—In 158 cases he used a hypodermic injection of one c. c. of ether, followed by the same quantity of pituitrin in the second stage of labor. He obtained, in all but one case, almost complete analgesia without interference with the uterine contractions. In multiparæ comparison of the amount of acute pain suffered in former labors showed a marked contrast in favor of his method. There was complete absence of afterpains in all his cases. He considers that this method is less dangerous than general anesthesia, even in eclampsia; there was absolutely no local reaction or inflammation at the site of injection.

BRITISH MEDICAL JOURNAL.

December 26, 1914.

Tetanus Treated by Injections of Carbolic Acid, by Purves Stewart and J. T. C. Laing.—The patient, a soldier aged twenty-seven years, received several shell wounds, one on the hand having apparently been infected with tetanus bacilli. Seven days after receiving the wounds, he had symptoms of tetanus with rigidity of the muscles of the jaw. Fifteen hundred units of antitoxin were given at once by subcutaneous injection, but the symptoms advanced and the rigidity involved the abdominal muscles and those of the spine. An intraspinal injection of a second 1,500 units of antitoxin was given the next day, and the day after,

the dose was repeated subcutaneously, but the symptoms still progressed. Full doses of bromide and chloral were administered in addition to the antitoxin. With the patient in this condition on the tenth day after infection and the fourth after the appearance of symptoms, injections of carbolic acid were begun. Two c. c. of a five per cent. solution were injected subcutaneously every two hours. Some improvement began to be noticeable on the first day of these injections, the tetanic spasms declining in frequency and the rigidity of the muscles of the jaws and spine subsiding. The injections were reduced on the next day to once every four hours, but they were given again every two hours for the two following days on account of a slight return of increasing rigidity and tetanus. From then on recovery was uninterrupted and the patient was discharged well a month after the injections were started. Five days after the beginning of the carbolic injections, a diffuse, punctate red rash appeared, due to carbolic acid, but at no time was there any sign in the urine of poisoning by the drug. Statistics are cited showing the mortality of developed cases treated with antitoxin to be nearly seventy-nine per cent. and these are compared with Baccelli's mortality of a little over seventeen per cent. in cases treated with injections of carbolic acid.

LANCET.

December 26, 1914.

Modern Aspects of Certain Problems in the Pathology of Mental Disorders, by Edwin Goodall.—Both observations recorded by others and those made by the author or his colleagues are drawn upon for the deduction of the conclusions given. In the first place it seems proved that in clinically certain cases of dementia paralytica the Wassermann reaction may be negative at a given examination when the usual amount of the patient's amboceptor is used. This is true of both blood serum and of spinal fluid. Even in pronounced cases the reaction may be negative from time to time. In stationary periods, it is frequently negative. In spite of these facts it is found that there is no relation between the reaction and the presence of a state of remission, positive and negative reactions being obtained during remissions with equal frequency. When the amount of the patient's amboceptor is increased from the usual 0.2 c. c. to 0.6 c. c. or over, there is a considerable increase in the proportion of positive reactions. Thus in thirty-six per cent. doubtful reactions in dementia paralytica were converted into positive reactions by this increase. An increase in positive reactions of only five or six per cent. was, however, recorded in cases other than dementia paralytica. A comparison of the frequency of positive Wassermann reactions in dementia paralytica with that in other mental disorders shows that a positive reaction with 0.2 c. c. of amboceptor can be regarded as indicative of the former condition, but a negative reaction with any amount of amboceptor does not exclude this disease, unless repeatedly obtained. In remissions or in slowly progressive cases the Wassermann test is not trustworthy for differentiation between de-

mentia paralytica and cerebrospinal syphilis. The estimation of the protein in the spinal fluid by the Nonne-Apelt method is more often positive than the Wassermann test in general paralysis, and is better in revealing the nature of the disease during remissions. It also occurs, however, more often in other forms of mental disorder. Abnormally high nitrogen content of the fluid and an abnormal density commonly run parallel in dementia paralytica, but not in other conditions except in senile and terminal dementias. It seems possible that the nitrogen test may be found to be the most accurate means of foretelling the presence, the approach, or the disappearance of anabolic or catabolic processes in the central nervous system. An increased cell percentage in the spinal fluid is also more often obtained in certain cases of dementia paralytica than is the Wassermann, but, like the protein and nitrogen tests, it is less specific in doubtful cases.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

November 16, 1911.

Dracontiasis or Dracunculosis, by R. E. McConnell.—A detailed discussion of the geographical distribution, cause, symptoms, economic importance, periodicity, prophylaxis, and treatment of this condition is given. The guineaworm, or *Filaria medinensis*, is responsible for its manifestations; it is stated to have attained forty inches in length, the majority of worms in McConnell's experience, however, having been twenty-five to thirty inches long; the diameter is about one twelfth of an inch. The condition has been known to occur in the United States, and a small endemic centre is said to exist in Brazil. Regarding prophylaxis, McConnell recommends straining the drinking water through cotton as an effective and simple measure; the small arthropod *Cyclops*, now believed to transmit the affection as an intermediary host of the filaria, is thus removed. The use of covered, properly constructed wells is also mentioned, as an alternative prophylactic measure. As to treatment, the author finds it useless to adopt any measure other than frequent application of water, to hasten emission of embryos, together with antiseptic dressings, before the worm begins to protrude from the integument—unless the worm happens to lie subcutaneously. After partial protrusion of the worm, the part should be thoroughly irrigated with water, and massage combined with gentle traction then practised daily until complete extrusion has occurred. A moist antiseptic dressing should be applied between sittings. In cases where the worm lies subcutaneously, McConnell advises that one cut down on its centre and exercise gentle traction by means of a broad tape passed around it.

BOSTON MEDICAL AND SURGICAL JOURNAL.

December 21, 1911.

Fornalini's Artificial Pneumothorax, by Gerardo M. Balboni.—Parts 1 and 2 of this paper appeared on November 5th, the present is devoted to the avoidable accidents and complications and results. The avoidable accidents are: 1. Hemorrhage due to puncture of the lung. Such a puncture is likely to happen in the first attempts, especially if the pleura is adherent. 2. Subcutaneous emphy-

sema, caused usually by a large wound from a large needle, injection of nitrogen at a high pressure, lack of tensity of the tissues, excessive thinness of the patient, and a paroxysm of coughing following an injection. This does not ordinarily cause any pain or serious disturbance. 3. Pneumothorax from puncture and rupture of the lung. This accident is serious, but not likely to happen unless the needle is moved laterally while in the lung tissue. 4. Deep or mediastinal emphysema, which is produced when the nitrogen is injected in large amounts into the lung, and is dangerous. 5. Pleural reflex. The writer doubts if this will occur if a preliminary subcutaneous injection of morphine is given, or if local anesthesia is produced by an injection of novocaine and adrenaline. 6. Shock from increased toxemia and acute dilatation of the heart. Under this heading is described a very septic, hopeless case in which death was hastened by an insufflation of 200 c. c. of nitrogen into the left pleural cavity. 7. Gas embolism ought to be absolutely avoided. No gas should ever be introduced unless the characteristic respiratory pleural oscillations are obtained, for it is only then that the operator can feel sure that he has entered the pleural cavity. 8. Infection of the pleura from without ought to be excluded by a scrupulous technic. 9. It is of great importance to recognize the development of a serous pleural effusion, which may occur at any time after the induction of the artificial pneumothorax when the lung is wholly or only partially collapsed. The author considers these effusions to be unfavorable complications and the presence of a large number of tubercle bacilli in the pleural cavity increases the absorption of toxins. Nevertheless he thinks that they should be interfered with as little as possible, unless they become too large or show unfavorable symptoms, such as continued pyrexia, marked distress, and disturbance of the adjacent organs, or change from serous to purulent character. The danger of infection becomes greater at secondary injections, as the fluid is an excellent culture medium. 10. A serous effusion may be made purulent by the introduction of pathogenic germs through faulty technic, and also by some intercurrent infection, appearing as a sequel of a tonsillitis, or rupture of an adhesion on the visceral side, or following a perforation of the lung. 11. Pain due to separation of the pleural surfaces and the stretching of adhesions. 12. At first most patients lose weight, often considerably. This the author accounts for by the fever and the reaction following an injection. The results are given of seventy cases, most of which were treated at home. He strongly advises using the treatment in the office. The results as given do not seem to be so very favorable, but in judging them it must be remembered that the majority of the patients were in the third stage of pulmonary tuberculosis, and that many of them were accepted for treatment simply to see how much could be done for the relief of symptoms in this way, realizing at the start that they were beyond hope on account of the extent of the disease in the better lung.

Action of Pituitrin upon Acute Heart Failure and Incompensate Heart Lesions, by Ernest Zucklin. Pituitrin is recommended in acute heart

failure with acute dilatation. It seems that pituitrin may be helpful in other pathological conditions of the heart, though he is not ready to recommend it. Thus he has obtained some excellent results in chronic asthma and hay fever through a combination of adrenaline and pituitrin, and has controlled the tympanites of typhoid fever by the subcutaneous administration of pituitrin, when it could not be controlled otherwise. He resorted to the same treatment also in two cases of intestinal hemorrhage in typhoid fever.

December 31, 1914.

Coccygodynia: Causes and Treatment, by Ralph Duffy.—True coccygodynia is always of traumatic origin, occurs in both sexes, and at all ages. Reflex coccygodynia is much more common in women, and is due to pelvic trouble. Treatment of the latter form must be directed to the underlying condition along with local remedies. That of true coccygodynia is surgical and consists of excision of the coccyx, or injection of alcohol along the sacro-coccygeal articulation. He reports one case apparently cured with a single injection of four c. c. of eighty per cent. alcohol in this situation, and has collated other reports. The method is so simple that it can be employed by any practitioner, and seems to be very effective.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

January 2, 1915.

The Etiology and Pathology of Bone and Joint Tuberculosis, by John Fraser.—This paper was abstracted in our issue for July 4th, page 53.

Are Institutions for Infants Necessary? by H. D. Chapin.—Large wards and large institutions are undesirable, as far as the infant is concerned; the multiplication of infants' hospitals should not be encouraged. When infants need hospital care, it had better be in small units, and the dangers of cross infection should be guarded against by the most skillful nursing. The principles of aseptic nursing should be observed, there should be enough nurses, or one good nurse to three or four sick infants. A baby with marasmus will rarely live long in an institution, and atrophic infants, with chronic indigestion and poor assimilation should never be treated in a hospital. Facts learned by many years of observation and experience do not seem to be sufficiently appreciated by many in this country; if they were, the large institutions for the care of foundlings and abandoned babies would be abolished, with lowering of the infantile death rate. In a recent year no less than forty-two per cent. of the total deaths of infants under one year in Manhattan occurred in institutions. The high mortality is due not so much to lapses in care or details in management (although rarely is there sufficient individual care given), as to the system itself, which fails because it is wrong. Systematized and regulated boarding out of infants is the method advocated by the author. Twelve years ago he instituted a plan of boarding out atrophic or abandoned babies which has been in successful operation ever since, in which the following features were emphasized: Boarding out in a certain district noted for its healthful conditions; constant attention to diet and hygiene on the part of a well qualified physi-

cian and nurse; keeping the infants as long as necessary, until digestion and assimilation are so improved as to result in gain in weight; the training, in a given neighborhood, of a number of foster mothers, who, by taking these infants into their homes, become fairly expert in handling them under conditions totally unlike those offered by the best institutions, and far superior to them.

Experiences of the New York Health Department in Typhoid Immunization, by L. I. Harris.

—Among the general conclusions of the author are the following: The accurate observations recorded in hundreds of thousands of cases leave no doubt as to the preventive powers of antityphoid vaccination in all but a relatively insignificant few; for a period of at least two years immunization is as effective in protecting from an attack of typhoid fever as a previous attack of the disease itself; recurrences may follow after immunization in exceptional instances in which debility and fatigue exhaust the resistant and defensive powers, and when there is exposure to massive doses of typhoid bacilli; to avoid severe reactions the following precautions should be observed: Never administer the treatment to any but the healthy; permit slow absorption, and avoid puncture of a vein or employ intramuscular injection; use a clean syringe and sterilize the area for injection with tincture of iodine; children especially are to avoid exposure to the sun after treatment; avoid administering it during the menses or pregnancy; allow no hard work or indulgence in alcohol after the injection; avoid re-injecting in indurated areas.

The Endoscopic Treatment of Nocturnal Pollutions, by Alexander Randall.—The treatment advised consists of local applications through an open air endoscope. For this purpose nothing is so valuable as a solution of silver nitrate—ten, twenty, or fifty per cent. When it is desired actually to destroy tissue, the nitrate crystal is employed. In the application of solutions to the posterior urethra the patient will be spared much discomfort if, after applying the medicament, and giving it the necessary time to act, the field of operation is completely dried with a cotton swab. It is not contended that every case of frequent nocturnal pollutions is promptly and permanently cured by endoscopic treatment, but the author's experience has been that remarkably beneficial results are obtainable in decidedly more than the majority of cases.

MEDICAL RECORD.

January 2, 1915.

A Simple, Easily Regulable Method of Applying Abduction in the Treatment of Shoulder Disability, by W. M. Brickner.—While the importance of early abduction after reducing fractures and dislocations of the head of the humerus is appreciated, the very great value of this in the treatment of shoulder disability (stiff and painful shoulder) is not sufficiently recognized. The simple method described is recommended in early cases to prevent, and in late cases to cure, stiffness and loss of motion. The patient is put to bed; the operator abducts the affected arm on a pillow, after which a muslin bandage is looped lightly about the wrist and carried to a convenient place on the head-

piece of the bed, where it is fastened. The upper end of the bed is then raised on shock blocks or chairs. As the patient's body gradually slides down in bed, his arm travels relatively further and further up, and thus a shoulder which obstinately resists forcible efforts at abduction, yields steadily and painlessly to this gradual countertraction. While in exceptional instances the application of the treatment overnight will suffice, it may require a week, or even more, to restore full abduction. The procedure may be variously modified. Instead of the bandage sling being fastened to the head of the bed, it may, in the day, be looped over the cross-bar (or a pulley) and carried down to the opposite hand, and the patient be allowed to amuse himself by pulling upon it from time to time; which in suitable cases will hasten the result. In cases where the condition does not demand, or the patient will not consent to continuous treatment, the method may be employed only at night. It may also be applied, though not so satisfactorily, in a large reclining chair. Except in cases of subluxation (where the method is recommended only when the subluxation is best reduced in this position), the continued abduction may occasionally be intermitted if it grows painful or irksome, the patient merely slipping his wrist out of the bandage loop and resting the arm on a pillow or by his side. A back rest may be substituted if for any reason thought preferable to the exaggerated Fowler position. Pillows may be piled up comfortably under the arm as auxiliary to the sling, or from time to time substituted for it. In many cases of shoulder disability there is limitation of external rotation, and the forearm will not drop back on the pillow in the plane of the body. It should therefore be supported on a small additional pillow placed behind it, and sometimes this device is desirable in other cases merely to relieve the fatigue of continued rotation.

Tuberculin in Pulmonary Tuberculosis, by L. S. Peters.—While some are strong opponents of all tuberculin treatment, and others are tuberculin optimists and in their enthusiasm go much too far, there are conservative physicians who, from careful study and long experience, know the value of tuberculin in the right patient and the harm it may do in the wrong one. There is little, if any, difference in the various preparations offered, as it is an absolute fact that the therapeutic action of all tuberculins is the same. No tuberculin possesses a direct curative power, but all the healing forces which are to a certain extent present in the natural course of tuberculosis are increased by this agent. The increase of toximmunity, or the specific antitoxic efforts of the organism and the stimulation of the local processes of physiological defense in the tuberculous foci, is the essence of tuberculin treatment. There is danger from tuberculin when it is given with too rapid increase of dose or started in too large doses, and in the majority of patients nothing can be gained by trying to lessen the time of treatment. All that is necessary is to exert a gradual influence by the injections which may arouse into action the two healing processes already existent in the natural recovery from tuberculosis, the local irritative process and the antitoxic defense.

Diseases of the Skin in Pregnancy, by P. E. Bechet.—Most of these affections are due to the toxemias of pregnancy, and, with the exception of herpes gestationis and impetigo herpetiformis, rapidly disappear after parturition. Nothing definite has been established as to the etiology of impetigo herpetiformis, which is extremely rare, and the most promising treatment for it is the injection of small amounts of blood serum. Genital pruritus may be idiopathic or caused by vaginal discharge, parasites, or glycosuria. General pruritus occurs most frequently in patients of neurotic temperament, and its treatment consists chiefly in elimination of the causative toxins through stimulation of the excretory organs. Locally, a lanolin ointment containing one or two per cent. phenol and from two to five per cent. menthol may be used. Other affections likely to be met with are chloasma, paronychia, alopecia, fibroma molluscum gravidarum, and prurigo gestationis.

ANNALS OF OPHTHALMOLOGY

October, 1914.

Chronic Sporotrichosis of the Eye, by Arthur J. Bedell.—In a case of this nature, the skin of the right eyelids was congested. An irregular conjunctival mass, resembling granulation tissue, extended beyond the ciliary margin of the nasal side of the upper lid. The entire palpebral conjunctiva was congested and presented many discrete follicles and small ulcers, which were shallow and yellowish. The inner half of the bulbar conjunctiva was congested with several enlarged follicles. The caruncular fold was three times its normal thickness and uniformly infiltrated. Both puncta were prominent and dilated, and the inner canthus was flooded with yellow, sometimes tenacious mucus that would reform quickly after irrigation. Pressure on the lacrimal sac caused no regurgitation, and there was no fullness over it. Sporotrichosis was suspected and proved later bacteriologically. Both the upper and lower ducts were opened and five firm, brown concretions were removed from them and the sac, from which the sporotrichium was obtained by culture. The entire conjunctiva was painted daily with tincture of iodine, while two gram doses of potassium iodide were given three times a day. Recovery was uneventful. The organism found was composed of a branching spore bearing mycelium, septate and granular, with fusiform bodies of uncertain origin, resembling those described by De Beurmann as occurring within the tissues of artificially infected animals and in the pus from human infection. The spores are commonly isolated and attached to the mycelium by a short and thin sterigma. The organism is Gram negative and not acidfast.

Treatment and Indications for Operation in Glaucoma simplex, by Harry S. Gradle.—Operation depends on three main features: Curve of intraocular pressure, tonometrically measured; influence of definite limited massage upon the existent intraocular pressure; and the visual fields. These should be carefully studied for a number of weeks before arriving at a decision whether to operate or not. If an operation becomes necessary he advises first a cyclodialysis. Should this be successful, a minimum of harm and a maximum of good has been

done. Should it fail, we are then justified in a filtration operation, but this should be a last resort.

Trephine Operation for Glaucoma; Late Infection from an Acute Conjunctivitis, by Myles Standish.—A case of this nature occurred in his practice. The danger of an intraocular infection from an acute conjunctivitis is sufficient to compel us to warn all such patients that any conjunctival disturbance is to be taken seriously and treated promptly, or disastrous results may supervene in a case in which a trephine operation has been done.

Proceedings of Societies.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Twenty-seventh Annual Meeting, Held at Asheville, North Carolina, December 15, 16, and 17, 1914.

The President, Dr. JOHN WESLEY LONG, of Greensboro, North Carolina, in the Chair.

New Lateral Anastomosis of Bloodvessels; Operation for the Cure of Arteriovenous Aneurysms.—Dr. J. SHELTON HORSLEY, of Richmond, doubted the practical utility of reversal of the circulation and mentioned some of his experiments which seemed to show that in reversal of the circulation by the end-to-end method the blood returned to the heart by anastomotic venous branches a short distance below the site of operation; the arterial blood in the reversed femoral vein never reached the foot. If the circulation was to be reversed, however, it should always be done by lateral anastomosis and not by the end-to-end method. He described a clamp which he had devised for lateral anastomosis of bloodvessels, five inches in length, with delicate curved blades, and handles in an axis with an imaginary line drawn from the tip to the heel of the blades. This permitted the handles to lie flat, out of the way during suturing. The forceps could also be used for temporary occlusion of bloodvessels and for the cure of arteriovenous aneurysm. In a lateral anastomosis the vessels were clamped by two of these forceps and held together by two sutures near the end of the proposed anastomotic opening. The opening was made with scissors and a tractor suture was placed in the outer wall of each vessel, but not tied. The suturing was done with a curved needle, the knot being on the outside. A continuous overhand stitch was used, beginning at the angle near the handles, and when the other angle had been reached, one of the tractor sutures in the outer wall was withdrawn and a tractor suture placed so as to unite both walls. This, when pulled upon, everted the intima and made suturing easier. The thread was tied to the short end, which was grasped in the hemostat when the first knot of the continuous suture was made. In using the forceps for arteriovenous aneurysm, the vessels were first dissected down to the aneurysm, and first the artery and then the vein were grasped by the forceps near their point of communication. The communication between them was then divided and the opening sutured. This made the operation easier even when a tourniquet was applied, but it should be especially valuable where no tourniquet could be used, as in the upper femoral region.

Radium Treatment of Fibroid Tumors.—Dr.

HOWARD A. KELLY, of Baltimore, presented a series of thirty-six cases treated with gamma rays. The patients were from thirty to sixty-seven years old, and the tumors pedunculated as well as interstitial and submucous. In these cases, with the exception of one, radium had either caused the tumor to disappear or had so far reduced its size as to render it innocuous. In every case subjected to intrauterine radiation the hemorrhage was controlled, and wherever it was desirable amenorrhea had been produced. Such radium treatments, calling for from 300 to 500 mg. of radium element, lasted only a few hours and, as a rule, did not have to be repeated. Furthermore, they were without risk. Such a treatment was preeminently adapted to tumors in young women, where menstruation would sometimes be conserved, and in hemorrhage cases, especially where profound anemia was found. Radium treatment did not preclude and in no wise complicated a surgical operation if it was thought best to do one later.

Diaphragmatic Hernia.—Dr. JOHN D. S. DAVIS of Birmingham, reported five cases of traumatic diaphragmatic hernia, the first seen four days after injury. On November 15, 1903, a fireman was strained while holding a water hose nozzle upon a ladder. He felt faint and was lowered to the ground and sent to the St. Vincent Hospital, where the author saw him four days later. The patient was in great agony. Left chest was dull, heart displaced to the right, and abdomen rigid. Patient could retain nothing on stomach, and died an hour later. Post mortem examination revealed a rent in the diaphragm, with the entire stomach and part of the transverse colon in the pleural cavity. When an operation was decided upon, the question arose. Which was the best route to follow? If the abdominal route was selected, it was not at all easy to reach the wounded diaphragm. Prolonged and difficult maneuvers were required to bring the wound into view. If it should be found necessary to enlarge the opening, the case would prove difficult of accomplishment by way of the abdomen, and finally it would be found difficult by this route to apply sutures to the diaphragm. The thoracic route presented great advantages. It had one decided merit in injuries of the chest, in that the external wound itself served as a guide. The chest was to be opened at the site of the wound, and the course of the wound followed. Further, this was the most direct route. It afforded space for reducing the hernia if one was found to exist, and for enlarging the diaphragmatic wound and treating the hernia.

There were two objections to thoracotomy. The first was the danger of pneumothorax; the second was that the route did not permit exploration of the peritoneum and its contents. This objection was valid in regard to those cases in which it was necessary to repair injuries and remove from the peritoneal cavity intestinal contents and blood. In the cases in which it was important to ascertain what viscera, if any, had been wounded, abdominal section was necessary. No hard and fast rules were to be made for surgical procedures. Each case should be approached according to its individual features, but the superiority of the transpleural route in the treatment of thoracoabdominal wounds

seemed to be indisputably established. A regular technic was difficult to establish because of the great variations of the wound. The author recommended as a rule Cranwell's trapdoor opening with the base above. The resection of one rib was often sufficient, and it was seldom that the incision need to extend above the eighth rib in front or the seventh behind.

Uterine Prolapse.—Dr. CHARLES H. MAYO, of Rochester, Minnesota, stated that with retroversion and descent, difficult to replace because of probable associated pelvic lesions or other abdominal complaint, the true condition of which had best be known, an intraabdominal operation should be made on the round ligaments. If, as rarely occurred, the cervix remained too far forward, the uterosacral ligaments should also be shortened effectively to bring the uterus to anteversion. The interposition type of operation was efficient in the relief of uterine prolapse associated with extensive cystocele. The best results were secured in women with a firm uterus, which usually meant an age limit within the forties. This operation relieved cystocele and descent or the first and second degrees of prolapse. In the third or fourth degrees of complete prolapse in women in the fifties, with a soft degenerating uterus undergoing rapid atrophy, and in whom the torsion of the ligaments in anteversion still permitted the uterus to be brought out of the body, the operation would undoubtedly fail of relief and another method should be substituted.

The modified Kocher operation was occasionally made upon women in the forties, in which case the tubes were divided, but was usually reserved for women well past the change of life with atrophied uteri. For a large group of cases, or the third and fourth degrees of prolapse in patients between forty-five and sixty-five years of age, often with atrophy of the uterus and distention of the vaginal outlet, neither the interposition nor the Kocher type of operation was indicated. In these cases the following was an effectual method of securing relief: The cervix was grasped with two pairs of volsellum forceps and drawn well out of the vagina. A pear shaped incision was now made with its apex one and one half inch below the external urinary meatus. It passed down each side of the cystocele and around the cervix. The sides of the incision were grasped and the vaginal wall was readily separated from the bladder by blunt gauze dissection. The apex of the vaginal flap attached to the anterior lip of the cervix was turned down and the bladder rapidly separated by gauze dissection from the front of the uterus. As soon as the peritoneal fold was reached, it was incised and divided laterally. The blunt gauze dissection now separated the posterior vaginal wall from the uterus at the side, and on to the broad ligaments. The sharp fork retractors were now used to draw the fundus of the uterus out of the incision as in an ordinary hysterectomy and the cervix was restored within the vagina. The broad ligaments were fully spread out on each side. Unless the ovaries were diseased they were not removed. A heavy hysterectomy forceps with long blades now grasped each broad ligament. The uterus was divided a half inch from the forceps and two more pairs were applied, one on each side, with their tip touching the cul-de-sac behind the cervix. The uterus was then entirely cut away.

If there was any tendency of the sigmoid or omentum to prolapse, it was held back by a long pad of gauze inserted into the peritoneal opening. The pairs of forceps, two on each side, were now approximated laterally, and a running mattress suture of chromic catgut was applied, to pass back and forth behind the forceps completely through both ligaments at such a distance as to tighten the broad ligaments. From one and one quarter inch to one and one half inch approximation of these ligaments was secured. The method of suture was such as to interlock and prevent the inward slipping of any vessels. When the suturing reached the round ligament side it was caught into the flap anteriorly where the bladder had been separated from the anterior vaginal wall. This suturing extended backward on each side from this point, catching into the broad ligaments, and then on each side into the angle of the depth of the dissection, thus compelling the bladder to rest on the broad ligaments. The loose ends of the exposed broad ligaments were now approximated by a running buttonhole stitch, extending back to the perineal position and the sides of the vaginal mucosal flaps, and closed by a running catgut suture up and back in a sub-mucous manner. No sutures were exposed.

President's Address: The Wisdom of the Past. A Prophecy of the Future.—Dr. JOHN WESLEY LONG, of Greensboro, North Carolina, reviewed the surgical work of some of the famous surgeons of the Southland. He also referred to the origin of the association, the personnel of its members, the broad and enduring basis upon which the organization was built, its purpose and scope as indicated by the constitution and transactions; the high order of work being done, of some of the men composing its ranks in the past as well as the present; the esteem in which the members were held at home and abroad, and the continually increasing number of worthy men who were knocking at the door of the association for admission; the delightful democracy that pervaded the deliberations of the association. Finally, he left it to the members to judge whether they were justified in saying that the wisdom of the past was a prophecy of the future.

Cancer of the Prostate.—Dr. E. S. JUDD, of Rochester, Minnesota, had found it difficult to estimate the frequency of occurrence of cancer in the prostate from operative records, since the cancerous tumor in this gland was very often small and might not produce local symptoms, but it was generally reported that one case in five of prostatic enlargement causing obstruction in old men was due to cancer. In his series of 878 prostatectomies, there were ninety-three cancers. The youngest of the patients was fifty-one years old, the oldest eighty-two. In addition to those, eighty-four cases were diagnosed cancer, but were not operated in because too far advanced. In many cases the symptoms of early cancer of the prostate could not be differentiated from adenomatous hypertrophy. Pain associated with cancer was usually more constant and more marked in the region of the prostate, and was not necessarily associated with micturition. Frequency of urination was also a prominent symptom and usually one of the first to appear. Hematuria was noted in 21.9 per cent. of cases and was a comparatively late symptom. The specific gravity

was usually low, in many instances ranging from 1,002 to 1,005. Physical examination might reveal a small prostatic gland, or, if hypertrophy was associated with the cancer, the enlargement might be quite marked. If, on palpation, the surface of the prostate was found to be rough with hard nodules, it always led to suspicion of cancer, since in the benign cases the prostates were nearly always smooth. In some of the cases in the series the gland was soft on palpation, owing to the fact that adenomatous hypertrophy predominated and the cancer could not be felt. A characteristic cystoscopic picture was a small prostatic bar unless adenomatous hypertrophy existed at the same time. Cystoscopic examination was of great aid in those cases, but should not be made in evidently hopeless cases, since the reaction might be quite severe. A study of the specimens removed at operation showed that in about seventy-five per cent., cancer was associated with hypertrophy, and in the remaining twenty-five per cent. cancer occurred in the prostates in which evidence of hypertrophy could not be found. The benign hypertrophied gland in some of those cases was quite as readily enucleated as in the ordinary one, and unless the posterior segment was enlarged the malignant process might easily be overlooked. If the hypertrophied part was more firmly attached posteriorly or shelled out with difficulty, there was always suspicion of cancer. Radical operations for cancer of the prostate had gained favor slowly, not because it was impossible to remove the growth within a reasonable degree of mortality, but largely because it was impossible to do a thorough radical removal of the cancerous prostate and the adjoining part of the bladder without completely destroying the mechanism of urinary control. Patients who were incurable, but fairly comfortable either with or without the catheter, should not be operated on, though certain of those who had not used catheters should be advised to do so, since they might be made more comfortable by its use. In many cases the obstruction to urination was due to benign hypertrophy. Removing the obstruction and also a part of the cancer would entirely relieve the patients for a time, and they would be more comfortable than with any other procedure.

Through correspondence and personal communication, eighty-two of the ninety-three patients operated on had been traced. Of these, 8 had lived more than 3 years, 12 more than 2 years, 13 more than 1 year; 24 had died within the first six months; 5 had died, date unknown. Of patients still living after six months, there were 3; after 1 year, 7; after 2 years, 4; after 3 years, 3; after 4 years, 2; after 9 years, one.

The patient who was living and free from symptoms nine years after the operation had a very small cancerous nodule removed. Many of the patients living at the present time were entirely free from symptoms. Three that were operated on within the year, yet more than six months ago, were well. In the cases of recurrence, hematuria was one of the first evidences. Difficulty of urination was also an early symptom and became rapidly marked in a number of cases, necessitating suprapubic cystotomy. Several patients lived more than three

years without evidence of trouble, when there was a return of all of their symptoms.

Large Hair Cast of Stomach Removed by Gastrotomy; Preoperative and X Ray Diagnosis.—Dr. RUDOLPH MATAS, of New Orleans, exhibited a large hairball (trichobezoar), removed successfully at the Touro Infirmary in May, 1914, from the stomach of a young white woman, aged nineteen years, who, as a child, had acquired the hair eating habit while suffering from uncinariasis. On June 19, 1914, the patient had been discharged from the hospital completely recovered. The mass weighed two pounds, three fourth ounce, or approximately 967 grams. It was shaped like an inverted gourd, and was moulded to the contour of the stomach. In the dry state, it measured twenty-six cm. in its broadest circumference, twenty cm. around its middle portion, and seventeen cm. in its narrowest circumference. The widest part filled the fundus of the stomach, and the narrowest filled the pylorus and duodenum. It was a mass of matted black hair which, when dry, was felted, and gave the appearance of the hair of a wild animal. Mixed with the hair were particles of earth and vegetable food stuffs, which had gravitated to the centre of the mass and were entangled by mucoid and other organic matter. The mass not only filled the stomach in its entirety, but was gripped tightly by its walls in many places. An incision, six and a half inches along the anterior surface of the organ, was required to permit its extraction. When removed from the stomach, it was covered with a thick slimy coat of extreme foulness. The only space for the passage of food was a narrow interspace between the mass and the lesser curvature, where fluids and semisolid foods could be forced from the cardia to the pylorus. The great value of the fluoroscope and radiograph in the diagnosis had been proved in this case. By following the rules laid down by C. Thurston Holland, of Liverpool (*Archives of Röntgen Ray*, July, 1913, and March, 1914), it was comparatively easy to make fluoroscopic diagnosis not only of a gastric tumor, but of an endogastric and detachable mass—which, if moulded to the shape of the stomach, would practically rule out any other condition but a hair ball.

(To be continued.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Diseases of Infancy and Childhood, their Dietetic, Hygienic, and Medical Treatment. A Textbook Designed for Practitioners and Students in Medicine. By LOUIS FISCHER, M.D., Attending Physician to the Willard Parker and Riverside Hospitals of New York City, Attending Pediatricist to the Sydenham Hospital; Former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital, etc. Fifth Edition. With 301 Illustrations, several in Colors, and 43 Full Page Half-tone and Color Plates. Philadelphia: F. A. Davis Company, 1914. Pp. xxiii-935. (Price, \$6.50.)

Advances in pediatrics are being made so rapidly that it becomes imperative for an author to revise his work at frequent intervals if it is to encompass the latest accepted ideas. This Fischer has done in his fifth edition. Es-

pecially in the chapters dealing with infant feeding and nutrition in general do we see important changes. The author has evidently convinced himself that the fats and not the protein is the main disturbing element, and that the sugars are not as innocent as they were formerly supposed to be. While many pages of statistics have been omitted in this edition with benefit, it is regrettable that many of the references inserted (often in the form of an argument) in the paragraphs have not been dropped. They are confusing to the reader who prefers rather to accept the conclusions of the author. Medical students particularly are often left hopelessly floundering, because the author has not expressed his own opinion, or indicated which method of procedure he has adopted as a result of his practical experience. The section on the infectious diseases, particularly the chapters on scarlet fever and diphtheria, are well written and show intimate study of a large mass of clinical material. This section is especially well illustrated with many plates in color. The newer procedures in diphtheria, e. g., intravenous injections of antitoxin, are well described and the technic is illustrated; while the vaccine treatment of various conditions is described and in most instances commented upon favorably; proper doses, however, are omitted and the practitioner has no guide as to the amounts and periods suitable in early life. An excellent table is given under the chapter on blood, showing at a glance the different conditions in disease. In a book as complete as this, we are astonished to find no mention of the Gaucher type of splenomegaly; distinctly a disease of childhood, and for a description of which one would turn to a book on pediatrics. In general the book is profusely illustrated, little being left to the imagination that is capable of pictorial representation. Isolated case histories which prove little or nothing, still appear throughout the volume; and these detract rather than add to the worth of the volume in our opinion. This new edition is replete with information, and as the general practitioner may be said to be a specialist in the diseases of children, it is particularly adapted for his use.

Morris's Human Anatomy. A Complete Systematic Treatise by English and American Authors. Edited by C. M. JACKSON, M.S., M.D., Professor and Director of the Department of Anatomy, University of Minnesota. Eleven Hundred and Eighty-two Illustrations, Three Hundred and Fifty-eight Printed in Colors. Fifth Edition, Revised and Largely Rewritten. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. xiv-1539. (Price, \$6.)

It is about twenty years since the first edition of this work appeared. Among the original contributors were the following noted surgeons and anatomists: Anderson, Davies-Colley, Jacobson, Morris, Bland Sutton, Treves, and Walsham; and the immediate success of this book was due in great measure to the admirable articles written by these men. Other factors which contributed to the popularity of the new anatomy were its reasonable size, and the plan of the book as outlined by its distinguished editor: "It aims at being a complete and systematic description of every part and organ of the human body *so far as it is studied in the dissecting room*" (italics ours). In the fifth edition, which is now before us, there is a new editor and an entirely new list of contributors, not one of the original staff being represented in the volume as it now stands. Much of their work still remains, as many of the revisers have, wisely, utilized their valuable contributions. The size of the book is much increased, and the original plan seems to have been departed from. Questions of embryology, morphogenesis, and histology, though treated concisely and briefly, aid in making the volume bulky. It is true that these subjects are of importance and are studied in all medical schools, but there is no lack of textbooks on these topics; and it would be interesting to know in how many schools students are supposed to gain their knowledge of histology and embryology from textbooks on anatomy. An attempt has been made to keep the size of the book within reasonable limits by the use of two kinds of type, but there is room for difference of opinion as to what is really important. For example, the origin, insertion, nerve supply, and action of the muscles are printed in the smaller type; but every student knows that he has to learn these facts, as a knowledge of them is required both in the class room and in the dissecting room. In the chapter on muscles the illustrations of the transverse sections would be of more service if the "key" to them was placed on the

same page with the cut; to have the cut on one page, and then be compelled to turn the leaf for the key is to place needless difficulty in the way of the student. Yet this is what is done on pages 375 and 376, 385 and 386, 405 and 406. The cross sections in the part on clinical and topographical anatomy are of far more service and convey their lesson at a glance; they do not pretend to teach so much and yet they manage to teach a great deal more. One marked improvement in this edition is the printing in the same type the name of all the structures represented in the illustrations; the old method of using different type for muscles, bones, arteries, nerves, etc., gave an unpleasant and "spotty" effect to the page. Another useful feature in this edition, is the inclusion of brief lists of bibliographical references at the close of each section. These lists are well selected and take up but little room.

Poverty and Tuberculosis. Two Years of the Home Hospital Experiment. Methods, Results, and Comparative Cost of the Combined Home and Hospital Treatment of Families Made Dependent by Tuberculosis. 1912-14. New York Association for Improving the Condition of the Poor. Publication No. 84. Pp. 112.

This volume, well printed and illustrated with good photographs, is the report of the first two years work of the Home Hospital at Seventy-eighth Street and East River. As its daily average is 130 patients, the statistics are worth consideration. The experiment is that of providing sanitary living apartments for poor families made dependent by tuberculosis. The report reveals excellent work done without publicity or notoriety. The members of the families who are able to work are obliged to do so and their earnings are contributed to the support of the hospital. The families are under the direct supervision of trained nurses and physicians, and the patients are required, when possible, to keep records of their own cases on history sheets. This not only lightens the nursing burden, but stimulates interest and rivalry among the inmates.

The régime is that of the best sanatoriums and hospitals, and the medical results are noteworthy, showing that 46.6 per cent. have been apparently cured, 35.5 per cent. have had the disease arrested, and 17.7 per cent. have improved. Furthermore, no member of any family who was well on admission has contracted the disease. There was a marked increase in the earning power of the individuals after their discharge from the hospital. The per diem cost per patient was seventy-seven cents the first year, and sixty-six cents the second year.

An appendix constituting half the book is devoted to medical statistics, receipts and disbursements, and the comparative cost of each patient at the large sanatoriums of the State of New York.

Reducing Weight Comfortably. The Dietetic Treatment of Obesity. By Professor GUSTAV GAERTNER, M.D., Vienna. Authorized Translation in English. Philadelphia and London: J. B. Lippincott Company. Pp. 313.

This volume is based on an experience of 2,000 cases of obesity treated by the author since 1903. The treatment naturally involves the cutting down of fats and starches, with avoidance of overeating. There is no limitation of liquids, however, as in most systems of treatment, hence no thirst. Great stress is laid upon the marked fattening influence of large quantities of bread, which the author calls the most frequent cause of obesity. The limitation of the number of daily meals to three or four, is more especially applicable to Austria where five or six meals are the rule. Exercise is not advocated as a weight reducer, nor are sweat baths and massage. The most important factor in the treatment, in the author's opinion, is the weighing of all food at the table by the patient at each meal, and for this he has devised special spring scales with which the dish is first weighed empty, and then with the food. No age limit is set, although the usual minimum is twelve years in girls, and fifteen in boys; one patient was eighty years old. A chapter is devoted to swimming, with Professor Gaertner's modification of it, called the *Ruderbad* or rowing bath. Chapters are given to the influence of dietetics on migraine and on blood pressure. Paradoxically the last chapter is devoted to "fattening treatment," while there is appended a table of equivalents of the metric measures of weight and length. The only authority quoted or endorsed is von Noorden, and the treatment is original with the author.

Interclinical Notes.

Few of the enemies of Mr. Roosevelt, we imagine, would permit the publication of a letter in which they were referred to in such terms as appear in an epistle to the late John Muir, concerning the former President, reprinted or paraphrased on page 28 of the *Outlook* for January 6th. The sense of humor which permits the wide circulation of this peevish lucubration covers more sins than charity. Any physician who thinks of quitting practice and getting a job, will find some excellent advice on page 39 of this issue from the pen of R. Roe—which has a pseudonymous sound.

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The *Review of Reviews* for January contains, among other excellent matter, a discussion of democracy and peace by Elihu Root, Joseph H. Choate, Baron d'Estournelles de Constant, and the eloquent Canadian editor, J. A. Macdonald. There is also an admirably written account of the Russian commanders by Charles Johnston. The war is regarded from many unexpected viewpoints, including the now burning question of the preparedness of your Uncle Sam. The illustrations are carefully chosen and are instructive as well as interesting.

* * *

Our chaste newspapers, which have never been able to print the dreadful words, syphilis and gonorrhea, have added another good word to their index expurgatorius. A mistress in one of these queasy sheets, now figures as a "love wife"; affinities have apparently become *passées*.

* * *

Before leaving for Europe, Irvin S. Cobb wrote a story for the *Red Book*, called *The Valley of Plenty*. It appears in the January issue of that lively magazine and turns out to be a picaresque tale, with one of those ingenious and now popular "unexpected" endings. Justin Huntly McCarthy, James Oliver Curwood, Albert Payson Terhune, and Ellis Parker Butler are also contributors to the January number.

* * *

James Stephens, in his curious story, *The Demi-Gods*, writes of the light from the lamps "falling" on the ceiling. We have a sort of idle wish to know whether Mr. Stephens intentionally wrote thus, or whether the phrase slipped from his pen unbeknownst as he might say.

Meetings of Local Medical Societies.

MONDAY, January 18th.—New York Academy of Medicine (Section in Ophthalmology); Yorkville Medical Society; Medical Association of the Greater City of New York (annual); Elmira Clinical Society.

TUESDAY, January 19th.—New York Academy of Medicine (Section in Medicine); Tompkins County Medical Society; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburgh Medical Association; Oswego Academy of Medicine (annual); Medical Society of the County of Westchester.

WEDNESDAY, January 20th.—New York Academy of Medicine (Section in Genitourinary Diseases); Alumni Association of City Hospital, New York; Schenectady Academy of Medicine; Women's Medical Association of New York City (New York Academy of Medicine); Medico-Legal Society, New York; Buffalo Medical Club; Northwestern Medical and Surgical Society of New York.

THURSDAY, January 21st.—New York Academy of Medicine (stated meeting); Auburn City Medical Society; Geneva Medical Society (annual); German Medical Society, Brooklyn; Æsculapian Club of Buffalo; New York Celtic Medical Society.

FRIDAY, January 22d.—Society of New York German Physicians; New York Clinical Society; Manhattan Medical Society; Society of Alumni of Sloane Hospital for Women; Brooklyn Society of Internal Medicine; Italian Medical Society of New York.

SATURDAY, January 23d.—New York Medical and Surgical Society (annual); West End Medical Society; Harvard Medical Society; Lenox Medical and Surgical Society.

Official News.

United States Public Health Service:

List of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending January 6, 1915:

Christian, S. L., Assistant Surgeon. Directed to proceed to New Orleans, La., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Fox, Carroll**, Surgeon. Granted one day's leave of absence from January 2, 1915. **Gwyn, M. K.**, Surgeon. Granted two months' leave of absence on account of sickness, from December 25, 1914. **Liddell, T. J.**, Assistant Surgeon. Relieved from duty at the Marine Hospital, New Orleans, La., and directed to proceed to the New Orleans Quarantine Station and report to the medical officer in charge for duty and assignment to quarters. **McDevitt, C. J.**, Assistant Surgeon. Directed to proceed to Chicago, Ill., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Miller, K. E.**, Assistant Surgeon. Granted one day's leave of absence en route to station. **Sayers, R. R.**, Assistant Surgeon. Directed to report to the chief medical officer at Ellis Island, N. Y., for duty. **Spencer, R. R.**, Assistant Surgeon. Directed to report to the director of the Hygienic Laboratory, Washington, D. C., for temporary duty. **Stewart, P. M.**, Assistant Surgeon. Directed to proceed to Baltimore, Md., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Teufel, W. C.**, Assistant Surgeon. Directed to proceed to Stapleton, N. Y., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Witte, W. C.**, Assistant Surgeon. Relieved from duty at the Marine Hospital, Chicago, Ill., and directed to proceed to Seattle, Wash., and report to the medical officer in charge for duty.

Promotions.

Passed Assistant Surgeons A. D. Foster and Halcombe McG. Robertson promoted and commissioned surgeons in the United States Public Health Service.

Appointments.

Dr. Sanders L. Christian, Dr. Paul M. Stewart, Dr. Charles J. McDevitt, Dr. Roscoe R. Spencer, Dr. Walter C. Teufel, and Dr. Royd R. Sayers commissioned as assistant surgeons in the United States Public Health Service.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending January 9, 1915

Carpenter, Alden, First Lieutenant, Medical Corps. When relieved from duty ordered to proceed to Texas City, Texas, and report for duty to the commanding general, Second Division, at Fort Snelling, Minnesota. **De Witt, Wallace**, Major, Medical Corps. Ordered to the Walter Reed General Hospital, Takoma Park, D. C., for treatment. **Haverkamp, C. W.**, Captain, Medical Corps. Ordered to proceed from Fort Jay, New York, for temporary duty at Madison Barracks, New York, and then to return to Fort Jay. **Lafamme, Frank L. K.**, First Lieutenant, Medical Corps. Upon being relieved from duty at Fort Hamilton, New York, ordered to proceed to West Point, N. Y., and report in person to the superintendent of the United States Military Academy relieving First Lieutenant Alden Carpenter. **Mason, George L.**, First Lieutenant, Medical Corps. Upon being relieved from duty with Second Division and from further duty at Fort Snelling, Minnesota, ordered to proceed to Fort Hamilton, New York, relieving First Lieutenant Frank L. K. Lafamme. **Meraux, L. S.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty at Jackson Barracks, Louisiana. **Miltenberger, Val E.**, First Lieutenant, Medical Reserve Corps. Ordered to report to the commanding general

of the Southern Department, Fort Sam Houston, Texas, for duty in that department. **Persons**, E. E., Major, Medical Corps. Relieved from further duty at the Army War College, Washington, D. C. **Pinkston**, Omar W., Captain, Medical Corps. Granted three months' sick leave on surgeon's certificate of disability. **Russell**, F. F., Major, Medical Corps. Upon expiration of present leave of absence will proceed to Camp E. S. Otis, Canal Zone, for duty. **Snyder**, H. D., Lieutenant Colonel, Medical Corps. Relieved from duty in the office of the surgeon general, Washington, D. C., and ordered to report to the commanding general, Canal Zone, to supervise medical personnel and matters pertaining to sanitation. **Van Dusen**, James W., Major, Medical Corps. Upon the expiration of present leave of absence ordered to proceed to Washington, D. C., for duty in the office of the surgeon general. **Vemans**, Herbert W., First Lieutenant, Medical Reserve Corps. Relieved from duty in the Philippine Islands to take effect about May 15, 1915, and then ordered to proceed to the United States and report to the adjutant general of the army on arrival in San Francisco, Cal., for assignment to duty.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the five weeks ending January 9, 1915:

Allen, D. G., Passed Assistant Surgeon. Detached from the Fifth Regiment Marines and ordered to the *New Hampshire*. **Angwin**, W. A., Passed Assistant Surgeon. Detached from the *Monterey* and ordered to the Naval Station, Cavite, P. I. **Butts**, Heber, Passed Assistant Surgeon. Detached from the *Wilmington* and ordered to the *Monterey*. **Connor**, W. H., Passed Assistant Surgeon. Detached from the *Dubique* and ordered to the *Fulton*. **Lawrence**, H. F., Passed Assistant Surgeon. Ordered to temporary duty at the Newport Hospital. **Ledbetter**, P. B., Assistant Surgeon. Detached from the *Pompey* and ordered to the Olongapo Station. **Leheried**, L., Assistant Surgeon. Detached from the marine advance base expedition, Pacific Fleet, and ordered to regimental headquarters, San Diego, Cal. **Longabaugh**, R. I., Passed Assistant Surgeon. Detached from the third regiment marine, San Diego, Cal., and ordered to regimental headquarters, San Diego, Cal. **Lowndes**, C. H. T., Medical Inspector. Detached from marine barracks, Washington, D. C., and ordered to Naval Dispensary, Washington, D. C. **Massey**, W. H., Assistant Surgeon. Detached from Olongapo Station and ordered to the *Pompey*. **Melhorn**, K. C., Passed Assistant Surgeon. Detached from the advance base expedition, Pacific Fleet. **Phillips**, E. W., Passed Assistant Surgeon. Detached from duty at the Naval Hospital, Philadelphia, and ordered to treatment at Naval Hospital, Las Animas, Colorado. **Pollard**, J. D., Passed Assistant Surgeon. Ordered to the *Minnesota*. **Roddie**, L. H., Assistant Surgeon. Detached from the marine advance base expedition, Pacific Fleet, and ordered to Asiatic Station, via transport sailing January, 1915. **Rose**, M. E., Passed Assistant Surgeon. Detached from the fifth regiment marines and ordered to Navy Yard, Charleston, S. C. **Seaman**, W., Surgeon. Detached from the Bureau of Medicine and Surgery, Navy Department, Washington, D. C., and ordered home to await orders: ordered to Naval Station at Honolulu, H. T. **Shaw**, H., Passed Assistant Surgeon. Ordered to duty in the Navy Yard, New York. **Sheldon**, L., Passed Assistant Surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to Naval Dispensary, Washington, D. C. **Stephenson**, C. S., Assistant Surgeon. Ordered to Naval Station, Cavite, P. I. **Stepp**, J., Passed Assistant Surgeon. Detached from Naval Dispensary, Washington, D. C., and ordered to Marine Barracks, Washington, D. C. **Taylor**, J. S., Surgeon. Detached from the *Illinois* and ordered to the *Nebraska*. **Thomas**, G. E., Passed Assistant Surgeon. Detached from the Naval Prison and ordered to the Navy Yard, Portsmouth, N. H. **Valz**, E. V., Passed Assistant Surgeon. Detached from the *Minnesota* and ordered home. **Vickery**, E. A., Passed Assistant Surgeon. Detached from the Fifth Regiment Marines and ordered to Asiatic Station. **Von Wedekind**, L. L., Medical Director. Detached from the *Solace* and ordered home to await orders.

Births, Marriages, and Deaths.

Married.

Baker—Hurlay.—In Ceewalla, Tenn., on Tuesday, December 29th, Dr. Edward Baker and Miss Lora May Hurlay. **Buehler—Strack**.—In Newton, Mass., on Friday, January 1st, Dr. George L. Buehler and Mrs. Gertrude H. Strack. **Jones—Spaulding**.—In San Francisco, Cal., on Wednesday, December 30th, Dr. Philip Mills Jones and Miss Helen L. Spaulding. **Livermore—Rockhold**.—In Corry, Pa., on Wednesday, December 30th, Dr. Frank Livermore, of Barberton, Ohio, and Miss Glenna Rockhold.

Died.

Allen.—In New York, on Wednesday, January 6th, Dr. Dudley Peter Allen, aged sixty-two years. **Borough**.—In Mishawaka, Ind., on Thursday, December 31st, Dr. John Borough, aged seventy-one years. **Bullard**.—In St. Johnsbury, Vt., on Sunday, January 3d, Dr. Harry G. Bullard, aged forty-nine years. **Doss**.—In Pittsfield, Ill., on Saturday, December 26th, Dr. C. H. Doss, aged eighty-one years. **Duncan**.—In Pittsburgh, Pa., on Sunday, December 27th, Dr. James A. Duncan, aged seventy-four years. **Eddy**.—In Mount Pleasant, Iowa, on Sunday, December 27th, Dr. William M. Eddy, aged seventy-six years. **Emrick**.—In Carlisle, Pa., on Wednesday, December 30th, Dr. Martin L. Emrick, aged fifty-one years. **Grady**.—In Trenton, Ky., on Tuesday, December 29th, Dr. R. R. Grady, aged seventy-two years. **Grube**.—In Pontiac, Mich., on Monday, December 28th, Dr. Charles L. Grube, aged forty years. **Hathaway**.—In Edgerton, Ohio, on Thursday, December 31st, Dr. Calvin Hathaway, aged seventy-five years. **Hathway**.—In East Liverpool, Ohio, on Friday, January 1st, Dr. Rosemond L. Hathway, aged fifty-one years. **Hodgen**.—In Lebanon, Ky., on Saturday, January 2d, Dr. R. T. Hodgen, aged seventy-seven years. **Hughes**.—In Milan, Texas, on Saturday, January 2d, Dr. Brice Hughes, aged eighty-one years. **Koehler**.—In Buffalo, N. Y., on Saturday, January 2d, Dr. Edward E. Koehler, aged forty-five years. **Kugeler**.—In San Francisco, Cal., on Tuesday, December 29th, Dr. Henry B. A. Kugeler, aged forty-four years. **Lillard**.—In Galveston, Texas, on Sunday, December 27th, Dr. Zachariah F. Lillard, aged fifty-four years. **Loring**.—In Valparaiso, Ind., on Tuesday, December 29th, Dr. David J. Loring, aged sixty-six years. **Manson**.—In Fresno, Cal., on Monday, December 28th, Dr. Peter Manson, aged sixty-nine years. **Miller**.—In Saegerville, Pa., on Thursday, December 31st, Dr. Aaron S. Miller, aged seventy-five years. **Newman**.—In Scottsdale, Pa., on Monday, December 28th, Dr. Silas W. Newman, aged sixty-one years. **Piersol**.—In Bellaire, Ohio, on Friday, January 1st, Dr. Joseph Piersol, aged fifty-seven years. **Powell**.—In Poughkeepsie, N. Y., on Wednesday, December 30th, Dr. Horace R. Powell, aged fifty-four years. **Reagin**.—In Fort Meade, Fla., on Thursday, December 31st, Dr. Callaway G. Reagin, aged seventy-nine years. **Roberts**.—In Towanda, Pa., on Thursday, December 31st, Dr. Henry Roberts, aged ninety-three years. **Robinson**.—In Seattle, Wash., on Saturday, December 26th, Dr. Isaac S. Robinson, aged fifty-nine years. **Shaw**.—In Beachmont, Mass., on Friday, January 1st, Dr. James S. Shaw, aged seventy-six years. **Smith**.—In Huntington, W. Va., on Friday, January 1st, Dr. French W. Smith, aged fifty-two years. **Smith**.—In Lafayette, Ind., on Saturday, December 26th, Dr. John M. Smith, aged sixty-six years. **Stoneroad**.—In Meadville, Pa., on Sunday, January 3d, Dr. Jackson Davis Stoneroad, aged eighty-nine years. **Swaving**.—In Pottsville, Pa., on Wednesday, December 30th, Dr. J. Harry Swaving, aged fifty years. **Tucker**.—In Colorado Springs, Colo., on Friday, December 25th, Dr. William Payton Tucker, aged forty-five years. **Turner**.—In Adairville, Ky., on Thursday, December 31st, Dr. Query M. Turner, aged sixty-seven years. **Wadsworth**.—In San Francisco, Cal., on Friday, January 1st, Dr. Charles Curtiss Wadsworth, aged sixty-five years. **Warder**.—In Germantown, Pa., on Tuesday, January 5th, Dr. Charles B. Warder, aged fifty-one years. **Wilson**.—In Somerville, N. J., on Saturday, January 2d, Dr. Joseph Hunt Wilson, aged eighty-six years.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843.

VOL. CI, No. 4.

NEW YORK, SATURDAY, JANUARY 23, 1915.

WHOLE No. 1886.

Original Communications.

THE HISTORY OF MEDICAL ETHICS.*

By GEORGE WYTHE COOK, M. D., LL. D.,
Washington, D. C.

However the rules governing our moral conduct are arrived at, whether it be by innate consciousness or by a process of evolution, it is essential that they should be based upon reasonable and just principles. In the beginning—when our first parents were placed in the garden of Eden—they were untrammelled by restrictions except the one prohibition—not to eat of the tree of the knowledge of good and evil. They were glad in the delights of Paradise, enjoying the bright sunshine, the rippling streams, and the cool sequestered places, unconscious that they were devoid of habiliments until curiosity got the better of them and they ate the forbidden fruit. Having disregarded the mandate of their Creator, they immediately discovered their nakedness and were ashamed, and straightway made for themselves aprons of fig leaves, endeavoring thus to hide from the owner of the garden. Cain becoming jealous of his brother, slew him, and when interrogated as to the whereabouts of Abel, sought to conceal his guilt by exclaiming, "Am I my brother's keeper?" Were these acts of primitive man, instigated by the unworthy motives of curiosity and jealousy, governed by reasonable and just principles? These citations of the consciousness of transgression on the part of our progenitors are suggestive that ethics is coeval with man. In searching for the beginning of the healing art, one finds that its origin is lost in a remote antiquity where it was largely governed by incantations and magical ceremonies. But in all ages physicians have belonged to a learned class and were in high favor with, and the associates and councillors of kings and emperors, the wealthy and the cultured.

The physician is mentioned at a very early date in Babylon, as early as 2700 B. C., and "a treatise on medicine of which fragments exist in the British Museum, was compiled long before the days of Abraham." Anterior to the seventeenth century of the Christian era, medical ethics, medical legislation and forensic medicine were practically one subject. The "oldest code of laws in the world," promulgated by Hammurabi (1), a king of the First Dynasty of Babylon (about 2250 B. C.), one of the essential features of which is based on personal responsibility and the *jus talionis*; it contains the following

sections relating to the medical profession, which are taken from the translation by Rev. C. H. W. Johns:

215. If a doctor has treated a gentleman for a severe wound with a bronze lancet, and has cured the man, or has opened an abscess of the eye for a gentleman with the bronze lancet, and has cured the eye of the gentleman, he shall take ten shekels of silver.

216. If he (the patient) be the son of a poor man, he shall take five shekels of silver.

217. If he be a gentleman's servant the master of the servant shall give two shekels of silver to the doctor.

218. If the doctor has treated a gentleman for a severe wound with a lancet of bronze, and has caused the gentleman to die, or has opened an abscess of the eye for a gentleman with the bronze lancet, and has caused the loss of the gentleman's eye, one shall cut off his hands.

219. If a doctor has treated the severe wound of a slave of a poor man with a bronze lancet, and has caused his death, he shall render slave for slave.

220. If he has opened his abscess with a bronze lancet, and has made him lose his eye, he shall pay money, half his price.

221. If a doctor has cured the shattered limb of a gentleman, or has cured the diseased bowel, the patient shall give five shekels of silver to the doctor.

222. If it is the son of a poor man, he shall give three shekels of silver.

223. If a gentleman's servant, the master of the slave shall give two shekels of silver to the doctor.

It is interesting to observe that the remuneration of the physician seems to have been ample, a shekel of silver being equal to about sixty cents of our money, and its buying power perhaps twenty or more times as great, so that if a doctor cured a severe wound with a bronze lancet, he received ten shekels of silver, equal at the present time to something over a hundred dollars. But if the patient die! one shall cut off the doctor's hands. A terrible instrument is this "bronze lancet"—cutting both ways.

In a very learned and interesting lecture upon Medicine Among the Assyrians and Egyptians in 1500 B. C., Dr. John D. Comrie, of Edinburgh, advances the very plausible suggestion that the "abscess of the eye" here referred to was probably the condition produced by couching the cataractous lens; which operation was common among primitive peoples, and was performed by traveling charlatans who would depress the lens and restore some degree of vision, collect their fees, and move on to the next place before the "abscess of the eye" developed. He says, "It is likely that the penalties of Hammurabi are directed against unscrupulous practice of this sort." He also says that "it is unlikely that any abscess of the eyeball would be treated by a practitioner with a lancet, or that the destruction of the eye would be punished, under a reasonable code of laws, in so severe a manner; for an abscess

*Read before the Medical History Club of Washington, D. C., November 29, 1913.

in the eyeball destroys the sight and appearance of the eye before any treatment is called for."

At the head of the profession stood the court physician, the Rab-mugi, or Rab-mag as he was called in Babylonia. In Assyria there was more than one doctor attached to the royal person and they were at time permitted to attend private patients, more especially in consultation.

The following translation of a letter from Arad-nana, a consulting physician to Esar-haddon, about a friend of the prince who had suffered from violent bleeding of the nose, is interesting from the point of view of medical etiquette:

As regards the patient who had bled through the nose, the Rab-mag reports: "Yesterday, toward evening, there was a good deal of hemorrhage; the dressings have not been properly applied. They have been placed outside the nostrils, oppressing the breathing and coming off when there is hemorrhage. Let them be put inside the nostrils, and then the air will be excluded and the hemorrhage stopped. If it is agreeable to my lord, the King, I will come tomorrow and give instructions; (meanwhile) let me know how the patient is."

We are told that Cyrus the Great, 530 B. C., "collected round him the very best physicians, and whatever instruments, medicines, meats, or drinks any one of them told him would be of use, there was not one of them he did not provide for himself and treasure up. And when any of those of whom it was proper for him to take care, fell ill, he went to see them and furnished them with whatever they wanted, and was thankful to the physicians whenever they wrought a cure on any one, and took the things with which they effected it from his store."

We cannot lay claim that specialization is a product of modern times, for specialists were very numerous in the olden days, there being one for almost each disease, and under such conditions there were swarms of medical practitioners in the communities.

The lofty and noble conception of the duties and responsibilities of the Greek physician as contained in the oath of Hippocrates, the oldest and most celebrated oath connected with the profession of medicine, is worthy of the highest admiration, and the rules of propriety which are inculcated therein may well be observed. Indeed it is a fact that today many medical schools still administer to their graduates a modified form of this oath. The following translation is by Francis Adams, of Banchary, the "Deeside scholar."

THE HIPPOCRATIC OATH (2).

I swear by Apollo the physician, and Æsculapius, and Health, and All-heal, and all the gods and goddesses, that, according to my ability and judgment, I will keep this oath and this stipulation—to reckon him who taught me this art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practise my art.

I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females or males, of freemen and slaves. Whatever, in connection with my professional practice or not in connection with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times! But should I trespass and violate this oath, may the reverse be my lot!

I have been unable to find any sufficient reason why the operation of lithotomy is forbidden.

The Vedic and Unani medical oaths are very similar to the Hippocratic and are no doubt based upon it. It will be sufficient to reproduce here the Vedic oath.

VEDIC MEDICAL OATH (3).

Thus said the illustrious son of Atri: If an intelligent man, impelled by proper reasons, desires to become a physician, the following should be the qualifications of him that should be selected as preceptor. He should be:

One whose doubts have been all cleared in respect of medical Scriptures—possessed of experience—clever in the practice of his profession—compassionate toward those who approach him—clean in person and clothing—have a practised hand in surgery—possessed of all the implements of his profession with his organs of sense perfect—conversant with nature—his knowledge of medical science supplemented with a knowledge of other branches of study—without malice—of a peaceful disposition—capable of bearing privations and pain—well affected toward disciples and disposed to teach them—capable of communicating his ideas.

Approaching such a preceptor, the pupil should attend on him with heedfulness like one revering one's sacrificial fire, or one's deity, or one's king, or one's father, or one's patron.

The preceptor should examine his pupil who should be of a mild disposition—noble by nature—not mean in acts—with eyes, mouth, and nasal line straight—tongue thin red and not slimy—teeth and lips without deformity—voice of good tone—possessed of intelligence—free from pride—endowed with a large understanding—with a power of judgment and memory—having a liberal mind—belonging to a medical family—devoted to truth—without defect in his limbs having all his senses perfect—disposed to solitude—free from haughtiness—of a thoughtful disposition—free from the faults of Vyāsana—not prone to wrath—endowed with purity of behavior and compassion for all—devotedly attached to the study of medicine—free from cupidity—without sloth—seeking the good of all creatures—prepared to obey all his preceptor's commands and attached to him.

Unto one adorned with such qualifications the preceptor should say: Thou shouldst always regard me as the foremost of persons—holding thyself in subjection to me—bearing thyself in a way that is agreeable and beneficial to me—behaving as a son, as a slave, as a suppliant, toward me while being taught by me.

Thou shouldst be free from impatience and always attentive, doing everything with a mind concentrated upon thy work—behaving with humility and acting after reflection—never murmuring or finding fault with thy instructors but willingly carrying out my orders.

Thou shouldst with thy whole heart strive to bring about the cure of those that are ill—not even for thy life's sake extorting their substance. Thou shouldst not, even in imagination, know another man's wife, and similarly thou shouldst not appropriate the possession of others.

Thou shouldst never administer medicines unto those that have incurred the displeasure of the king or those that are ill disposed toward him or those that have incurred the displeasure of the great, or those bearing ill will toward them. So also thou shouldst not administer medicines to those who are of exceedingly perverse or wicked disposition, or those who are exceedingly poor, or those who never vindicate their character when it is aspersed, or those

who are on the point of death or those who have not their masters near them, or those women who have not their husbands or other guardians near them.

Thou shouldst never gossip of the practices of a patient's house. Even if possessed of sufficient knowledge, thou shouldst not boast of that knowledge.

There is no end in the science of medicine. Hence heedfully and carefully thou should devote thyself to it, conducting thyself as I direct and without feeling of humiliation acquiring practice in the art.

Unto men, possessed of intelligence, the entire world acts as a preceptor. Unto men, destitute of intelligence, the entire world occupies the position of an enemy.

The preceptor saying these words the pupil should answer, "Yes." If the pupil does as he is commanded, then should he be taught. If he behaves otherwise he should be rejected as unworthy.

The great Hippocrates, whom we are accustomed to call the Father of Medicine—in that section of his writings which he calls *The Law*—describes in a graphic and masterly way the ideal physician, and details with much precision the requisites necessary to acquire eminence in the art of medicine. And I do not know that any of our moderns have improved upon his portrayal. A translation is here transcribed:

THE HIPPOCRATIC LAW.

1. Medicine is of all the arts the most noble; but, owing to ignorance of those who practise it, and of those who, inconsiderately, form a judgment of them, it is at present far behind all the other arts. Their mistake appears to me to arise principally from this, that in the cities there is no punishment connected with the practice of medicine (and with it alone) except disgrace, and that does not hurt those who are familiar with it. Such persons are like the figures which are introduced in tragedies, for as they have shape, and dress, and personal appearance of an actor, but are not actors, so also physicians are many in title but very few in reality.

2. Whoever is to acquire a competent knowledge of medicine, ought to be possessed of the following advantages: A natural disposition; instruction; a favorable position for the study; early tuition; love of labor; leisure. First of all, a natural talent is required; for, when Nature opposes, everything else is in vain; but when Nature leads the way to what is most excellent, instruction in the art takes place, which the student must try to appropriate to himself by reflection, becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labor and perseverance, so that the instruction taking root may bring forth proper and abundant fruits.

3. Instruction in medicine is like the culture of the productions of the earth. For our natural disposition is, as it were, the soil; the tenets of our teacher are, as it were, the seed; instruction in youth is like the planting of the seed in the ground at the proper season; the place where the instruction is communicated is like the food imparted to vegetables by the atmosphere; diligent study is like the cultivation of the fields; and it is time which imparts strength to all things and brings them to maturity.

4. Having brought all these requisites to the study of medicine, and having acquired a true knowledge of it, we shall thus, in traveling through the cities, be esteemed physicians not only in name but in reality. But inexperience is a bad teacher, and a bad fund to those who possess it, whether in opinion or reality, being devoid of self reliance and contentedness, and the nurse both of timidity and audacity. For timidity betrays a want of powers, and audacity a want of skill. There are, indeed, two things, knowledge and opinion, of which the one makes its possessor really to know, the other to be ignorant.

5. Those things which are sacred are to be imparted only to sacred persons; and it is not lawful to impart them to the profane until they have been initiated in the mysteries of the science.

In a learned and instructive address by Sir John Tweedy, before the Medico-Legal Society of London on The Deterrent Influence of Social and Legal

Restrictions on the Medical Thought and Practice (4), he very clearly sets forth how such restrictions, as also the liabilities to which medical practitioners were exposed in case of ill success or failure, did much to check the progress of medical thought and practice. Thus physicians in ancient Egypt were bound by the rules laid down in the Sacred Books of Thoth or Hermes Trismegistus, according to which a physician was liable to capital punishment if his patient died after being treated in any other way than that prescribed by authority, though physicians were sometimes allowed to depart from such rules after the fourth day. Retaliatory methods were not confined to the time of Hammurabi in ancient Babylon; even three thousand years later, during the plague which visited Europe near the end of the sixth century, a duchess of Burgundy, who was one of its victims, accused her physicians, during her illness, of administering potions intended to kill her, and exacted a promise of the king to avenge the crime. Accordingly, after her death, the king, in conformity with his oath and the old Teutonic law, had the doctors slain. Considering the social and legal penalties to which physicians were subjected in the Middle Ages, it is not surprising that little progress was made in the healing art, but it is amazing that anyone had the temerity to engage in the practice of medicine at all.

The considerations influencing Hippocrates, as set forth in his treatise, and those governing Guy of Chauliac, of the first half of the fourteenth century, and said to be the greatest European surgeon from the time of Hippocrates to our own day, are in marked contrast. Both advise against undertaking desperate cases, the latter because of dread of personal risk, the former not from fear of consequences, but in recognition of the limitations of the medical art which "seeks to deliver sick persons from their sufferings and the diminishing of the violence of disease, and not the undertaking of treatment of those who are overcome by sickness, because the medical art here is of no avail." "A consideration of the differences in attitude between the Hippocratist and the surgeon of the Middle Ages suggests the inference that wherever and whenever the medical profession and medical practice have been most highly organized, the penalties for failure and ill success have been most humane; and wherever they have been less organized, the penalties have been harsher, more vindictive, and often inhuman. In the more highly organized state of medicine, practitioners have been better educated, and more skillful, bolder, surer, yet more cautious amid dangers as Guy puts it, more circumspect, and therefore more trusted. When the organization has been imperfect, the number of educated physicians and surgeons has been fewer, while quacks and charlatans have been more numerous and more unconscionable. Bruno of Lombardy, writing in the middle of the thirteenth century, states that the majority of those who practiced surgery in his time were uneducated persons, boors and imbeciles.

Among the Visigoths (650 A. D.) the lay physician, because he was not of the monastic schools, was not included in the learned class, medicine being deemed an "illiberal art." His vocation was not

considered disreputable, however, and he had a seat at the festal board, though it may have been a low one. As will be seen from the perusal of the following ordinances (5), the Visigoths held the physician to strict accountability, and while the penalties imposed were very drastic in character, the ordinances contain some protective clauses.

1. No physician may undertake to bleed a woman in the absence of her relatives: if he has done so, he shall pay ten solidi to the relatives or to the husband, since it is not impossible that occasionally some sport may be associated with such an opportunity. Whoever touched the hand, arm, or breast of a maiden was fined 15, 30, 35 solidi. The servant who became too intimate with the maid of another, if she died of the natural results, was castrated.

2. No physician shall visit any person confined in prison without the presence of the jailer, lest the prisoner, through fear of punishment, may seek the means of death at his hands.

3. When any one has called a physician to seek a sick person, or heal a wound, the physician, when he has seen the wound or recognized the pains, shall at once take charge of the patient under definite security.

4. When a physician has assumed charge of a patient under security, he must cure him. If death ensues, he shall not demand the stipulated fee, nor shall a suit be instituted for it by either party.

5. If a physician has removed a cataract from the eye and restored the patient to his former health, he shall receive a fee of five solidi.

6. If a physician injures a nobleman in bleeding him, he shall pay 150 solidi. If, however, the patient dies, the physician (how equitable!) shall be delivered up at once to his relatives, to be dealt with as they may see fit. When, however, the physician has killed or injured a slave, he must return a slave of the same kind.¹

7. When a physician has accepted a student, he shall receive a fee of twelve solidi. (A solidus had a value of about \$2.25 and a purchasing power of from thirty to sixty times as great as of today.)

8. No one shall cast a physician into prison without a hearing, except in a case of murder.

Similar in intention were the laws of the Franks and Allemanni, the Salic law, the Capitularies of Charlemagne, a mixture of Germanic, Roman, and Merovingian codes, and the assizes of the Crusaders. In these ordeal by fire, torture, ocular verification of impotence, and "cruentation" or the supposed bleeding of a corpse in the presence of the murderer, were regarded as legal tests (6).

No medical man guarantees a cure, but he obliges himself to bring to his cases a fair and reasonable degree of skill and to exercise such careful supervision as will tend to the restoration of the patient. Even in our own enlightened age, a physician may be said to be qualified to practise medicine if he measures up to the requirements of the following:

MEDIEVAL LAW FOR THE REGULATION OF THE PRACTICE OF
MEDICINE, PROMULGATED BY EMPEROR FREDERICK II,
IN 1240.

While we are bent upon making regulations for the common weal of our subjects, we keep ever under our observation the health of the individual. In consideration of the serious damage and the irreparable suffering which may occur as a consequence of the inexperience of physicians, we decree that in future no one who claims the title of physician, shall exercise the art of healing or dare to treat the ailing, except such as have beforehand, in our University of Salerno, passed a public examination under a regu-

lar teacher of medicine, and been given a certificate not only by the professor of medicine, but also by one of our civil officials, which declares his trustworthiness and sufficient knowledge. This document must be presented to us, or, in our absence from the kingdom, to the person who remains behind in our stead, and must be followed by the obtaining of a license to practise medicine either from us or from our representative aforesaid. Violation of this law is to be punished by confiscation of goods and a year in prison for all those who in future dare to practise medicine without such permission from our authority.

Since students cannot be expected to learn medical science unless they have previously been grounded in logic, we further decree that no one be permitted to take up the study of medical science without beforehand having devoted at least three full years to the study of logic.

After three years devoted to these studies, he (the student) may, if he will, proceed to the study of medicine, provided always that during the prescribed time he devotes himself also to surgery, which is a part of medicine. After this, and not before, will he be given the license to practise, provided he has passed an examination in legal form as well as obtained a certificate from his teacher as to his studies in the preceding time. After having spent five years in study, he shall not practise medicine until he has during a full year devoted himself to medical practice with the advice and under the direction of an experienced physician. In the medical schools the professors shall during these five years devote themselves to the recognized books, both those of Hippocrates as well as those of Galen, and shall teach not only theoretic, but also practical medicine.

We also decree, as a measure for the furtherance of Public Health, that no surgeon shall be allowed to practise, unless he has a written certificate, which he must present to the professor in the medical faculty stating that he has spent at least a year at that part of medicine which is necessary as a guide to the practice of surgery, and that, above all, he has learned the anatomy of the human body at the medical school, and is fully equipped in this department of medicine, without which neither operations of any kind can be undertaken with success nor fractures be properly treated.

In every province of our kingdom which is under our legal authority, we decree that two prudent and trustworthy men, whose names must be sent to our court, shall be appointed and bound by a formal oath, under whose inspection electuaries and syrups and other medicines shall be prepared according to law and sold only after such inspection. In Salerno, in particular, we decree that this inspectorship shall be limited to those who have taken their degrees as Masters in Physics.

We also decree by the law, that no one in the kingdom, except in Salerno or in Naples (in which were the two universities of the kingdom), shall undertake to give lectures on medicine or surgery, or presume to assume the name of teacher, unless he shall have been very thoroughly examined in the presence of a Government official and of a professor in the art of medicine.

Every physician given a license to practise must take an oath that he shall fulfill all the requirements of the law, and in addition, whenever it comes to his knowledge that any apothecary has for sale drugs that are of less than normal strength, he shall report him to the court, and besides he shall give his advice to the poor without asking any compensation. A physician shall visit his patient at least twice a day, and at the wish of his patient once also at night, and shall charge him, in case the visit does not require him to go outside the village or beyond the walls of the city, not more than one half tarrene in gold for each day's service. . . . From a patient whom he visits outside the village or the wall of the town, the physician has the right to demand for a day's service not more than three tarrenes, to which may be added, however, his expenses, provided that he does not demand more than four tarrenes altogether.

He (the regularly licensed physician) must not enter into any business relations with the apothecary, nor must he take any of them under his protection nor incur any money obligations in their regard. . . . Nor must any licensed physician keep an apothecary's shop himself. Apothecaries must conduct their business with a certificate from a physician, according to the regulations and upon

¹Reiss, in his *History of Medicine*, from which this is quoted, says in a footnote: "The physicians, however, in doubtful cases entrusted themselves against these and similar ordinances by having the patient delivered dead in proper legal form, and in advance of treatment, so that if death actually ensued it could not be ascribed to their treatment at all events."

their own credit and responsibility, and they shall not be permitted to sell their products without having taken an oath that all their drugs have been prepared in the prescribed form, without any fraud. The apothecary may derive the following profits from his sales: Such extracts and simples as he need not keep in stock for more than a year before they may be employed may be charged for at the rate of three tarrenes an ounce.² . . . Other medicines, however, which in consequence of the special conditions required for their preparation or for any other reason the apothecary has to have in stock for more than a year, he may charge for at the rate of six tarrenes an ounce. Stations for the preparation of medicines may not be situated anywhere, but only in certain communities in the kingdom as we prescribe below.

We desire also that the growers of plants meant for medical purpose shall be bound by a solemn oath that they shall prepare medicines conscientiously, according to the rules of their art, and as far as it is humanly possible that they shall prepare them in the presence of the inspectors. Violations of this law shall be punished by the confiscation of their movable goods. If the inspectors, however, to whose fidelity to duty the keeping of these regulations is committed, should allow any fraud in the matters that are entrusted to them, they shall be condemned to punishment by death.

From this it would appear that the requirements for the practice of the healing art in the Middle Ages, at least in southern Italy, were of a high grade and creditable character. Under the law of Frederick II, the remuneration of the physician was good. According to Dr. James J. Walsh, whose translation I have used, "a tarrene in gold was equal to about thirty cents of our money. Money had at least twenty times the purchasing power at that time than it has now."

Lanfranc, who flourished in 1295 A. D. and is really regarded as the founder of French surgery, thus delineates the requisites necessary in a surgeon:

Needful is it that a surgeon be of complexion well proportioned. . . . He must have hands well shaped, long small fingers, and his body not quaking. Also he must be of subtle wit, for all things that (be)longeth to surgery may not with letters be written. . . . Be he no glutton, nor not envious nor a niggard; be he true, humble, and pleasingly bear himself to his patients; speak he no ribaldry in the sick man's house; give he no counsel but if he be asked; nor speak he with no woman in folly in the man's house; nor chide he not with the sick man nor none of his household, but courteously speak to the sick man, and in all manner of sickness promise him health although you despair of him, but nevertheless tell his friends the truth. Love no hard cures and undertake no desperate cases. Help poor men as far as possible and ask good reward of the rich. Praise he not himself with his own mouth, nor blame he over sharply other leeches. Love he all leeches and clerics, and, as far as possible, make he no leech his enemy. So clothe he himself with virtue that he may obtain a good name and a fair reputation. This is the ethical teaching.

Henri de Mondeville, who was contemporary with Lanfranc, gives similar rules though more in detail:

A surgeon ought to be fairly bold. He ought not to quarrel before the laity, and although he should operate wisely and prudently, he should never undertake any dangerous operation unless he is sure it is the only way to avoid a greater danger. His limbs, and especially his hands, should be well shaped with long, delicate, and supple fingers which must not be tremulous. He ought to promise a cure to every patient, but he should tell the parents or the friends if there is any danger. He should refuse as far as possible all difficult cases, and he should never mix himself up with desperate ones. He may give advice to the poor for the love of God only, but the wealthy should be made to pay well. He should neither praise

himself nor blame others, and he should not hate any of his colleagues. He ought to sympathize with his patients in their distress and fall in with their lawful requests so long as they do not interfere with the treatment. Patients, on the other hand, should obey their surgeons implicitly in everything appertaining to their cure. The surgeon's assistants must be loyal to surgeon and friendly to his patients. They should not tell the patient what the surgeon said unless the news is pleasant, and they should always appear cheerful. They must agree among themselves as well as with the patients, and they must not be always grumbling, because this inspires fear and doubt in the patients.

De Mondeville then shows how an honest surgeon may be replaced and damaged by one who is less conscientious, for he says:

A rich man has the beginning of an inflammation. He calls in an upright surgeon, who says after examining him, "Seigneur, there is no need for any operation here, because nature will relieve herself, etc.;" but if the inflammation gets worse, send for me." It then happens that the patient calls in another man who is a quack, and he is told, "Seigneur, you have a great deal of inflammation, I can feel it inside, and if you are not treated at once you will certainly regret it." This surgeon then sets to work and makes an inflammation, which he afterwards cures, so that the whole proceeding redounds to his credit and profit, for he discovered an inflammation which did not exist, whilst the first surgeon is damaged both in his reputation and his pocket because he did not find out what was not there.

Then again, one of these second rate surgeons will come to a sick man who is wealthy, and will say to him, with the voice of an archangel, taking care that no witnesses are present, "Seigneur, you must remember that you are the one who is ill and in pain. It is not your son or your nephew. It is you who are kept awake by the pain while your friends and servants sleep. Others won't take care of you if you don't take care of yourself. You are rich enough to get advice and to buy health and whatever else you want if you choose to do so. Riches are not more than health, nor is poverty worse than sickness. Have you not made the greater part of your money yourself and for yourself, so if you are not a miser you can apply it to relieve your wants? Would to God that those who look after you so badly had your complaint. But all this is between ourselves, and what I tell you is only out of pity for you and for your good." Then, in the absence of the patient, he speaks to the relatives and says, "Seigneurs, this man has the greatest confidence in you, and, truly, if you lose him, you will lose an excellent friend. It is not to your credit either to let him go without advice, for if he died without advice you would be blamed everlastingly, even if it made him as poor as Job. He is really in great danger, and it is a serious case, but Nature sometimes does better than we have any right to expect. He is sure to die if no one treats him, but if he is properly treated it is just possible that he will escape and not die. If he dies it won't be the result of the treatment, because he is nearly dead already, his only chance is to have a consultation, etc. I am speaking to you as a friend and not as a doctor."

But it is quite another matter when this same surgeon has to treat a poor man, for he says, "I am really sorry for you, and I would gladly help you for the love of God only. But I am very busy just now with a lot of difficult cases, and, besides, the season is not a very favorable one for an operation. You can't afford to buy what is necessary for your case, such as drugs and dressings, so I would put it off until the summer. You will then be able to get the herbs and whatever else is wanted and so save expense. The summer, too, is the best time for the poor." When the same pauper comes back in the summer the surgeon says to him, "I am very sorry that I put you off in the winter and told you to wait until the summer, because the winter is really the best time. Summer is too hot and there is a fear of stirring up the disease. I should advise you to wait until the hot weather is over." And this goes on everlastingly, for this kind of a surgeon never finds time to operate upon a pauper.

The surgeon, too, must beware of those who will make infamous proposals to him, because from time immemorial

²Ninety cents an ounce seems very dear, but this is the maximum.

it has been an article of faith with the common people that every surgeon is a thief, a murderer, or a swindler.

According to de Mondeville, the same difficulties as to the collection of fees obtained in the fourteenth century as exist today. He classifies his patients according to their ability to pay as good, bad, and indifferent. He says that "sometimes, indeed often, it happens that the rich come to the leech dressed like paupers. If the surgeon suspects this he should say to his patient, 'Seigneur, I have examined your case but I must think it over, and I should like to see you again when I have done so, because he who judges in haste repents at leisure,' and in the interval the surgeon should make inquiries." De Mondeville seems to have been equal to the emergency. It was the custom to "double the fee on account of the horse when the master made his visits on horseback."

Not long since, when automobiles were not so common as they are today, the writer heard a man who was complaining of the charges of his physician say that he could get an automobile doctor for no greater fee than had been charged him. The fee was influenced by the manner in which the physician went to his patients then as it seems to be now.

John Arderne, a distinguished surgeon of England, born in 1307, especially celebrated for his treatise on fistula in ano, was a Master Surgeon, or surgeon of the long robe, so classed to distinguish him from the Barber Surgeon, or surgeon of the short robe. He was of good education, wide experience, and sound judgment. According to Arderne, the qualities required in a good surgeon are piety, charity, modesty, wariness, gravity, careful of the company he keeps; studious, sober, not gluttonous, nor cynical; courteous and not jealous of other leeches; continent, friendly to servants, chaste; easy of address, neither too rough nor too familiar, not too ready to undertake a case, and always to see it before giving advice; to have a clear understanding about the fee before operating. The leech should be dressed soberly, be clean in his person, should cultivate silence, and not be foul mouthed or lying. He should have a store of comfortable sayings. Because of the effect of the mind on the body, the leech should have a good stock of merry tales. He should most strictly keep his own counsel about the patient (8).

This last injunction is contained in all codes of medical ethics and is regarded as a most salutary requirement, not to be departed from except under exceptional circumstances, and is recognized in many legal enactments. Some have thought that in view of the *lex non scripta*, which has obtained from time immemorial, a written code was not necessary for the guidance of medical gentlemen; but as "a silk purse cannot be made from a sow's ear" a written code provides more certainly for the information and guidance of all the profession.

"Through centuries," says Jacobi, "statutes of associations, faculties—for instance, those of the chirurgiens of Paris, 1370—the barbers of Alsace, the medical faculties of Leipsic (1309), Cologne (1392), Vienna (1494), contain all sorts of rebukes, reprimands, fines, and even incarcerations on account of unethical behavior."

(To be concluded.)

HOW SHALL WE KNOW WHEN GONORRHEA IN THE MALE IS CURED?

By ABR. L. WOLBARST, M. D.,
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This paper is an attempt to point out the steps necessary in an examination of a patient who has had gonorrhea, and who desires to be informed whether he may consider himself cured, and therefore permitted to marry without fear of spreading infection.

Notwithstanding the remarkable progress that has been made in recent years in the domain of urology and its allied branches, we are still justified in asking, How shall we know when gonorrhea in the male is cured? We are surely within the truth when we say that gonorrhea in the male *can* be cured, for we have ample evidence, clinical and theoretical, that men have been infected with the gonococcus, have been treated, and to all intents and purposes have been restored to their former normal condition. The clinical evidence has been seen in the patient himself, he has become free of his discharge, his urine has become clear, his prostatic secretion has not revealed the presence of gonococci, and he has gone for years, living his usual life, without any further evidence of disease. Theoretically, we have seen evidences of the cure in the fact that such patients have married, their wives have not been infected, their children have been born without injury to their eyes. In these cases we have been justified in concluding that such men were cured of their Neisserian infection.

But when our patient asks point blank "Am I cured and is it safe for me to marry?" where is the man who can conscientiously say "Yes, you are thoroughly cured, you may marry with safety, and you may rest assured that there is no danger of carrying infection to your wife?"

The writer knows nothing more difficult in connection with the subject of gonorrhea than to answer the question above propounded. Notwithstanding the fact that the patient has been treated according to the best methods, that he has responded beyond all expectation, that he feels perfectly well, and appears well clinically, there must always be present, in the physician's eye, the possibility of gonococci hiding somewhere in that patient's urethra or its annexa, which may, at some remote and future time, awaken and set up an infection similar to a greater or less degree, to the one from which he has already recovered. If the physician will bear this possibility in mind *always*, never for one moment permitting himself to forget it, much of the damage that has been laid at the door of the gonococcus, will be avoided in the future. For if he remembers this possibility, he will give his answer guardedly and cautiously, and thus not only maintain his own reputation for wisdom, but at the same time instill in his patient a proper conception of his present condition, and a wholesome fear of future possibilities.

It is evident that our determination of a cure will depend in a large degree upon the character of the case. Evidently the task is much simplified if the infection has been the first from which the patient has suffered, and it has run a simple, un-

complicated course. In such a case, the anterior urethra bears the brunt of the attack; however, in view of the possibility of the infection having spread to the deeper parts without giving any clinical evidence of that fact, our examination should always include the prostate and seminal vesicles, as a matter of precaution.

When, however, the inflammation has manifestly extended to the prostate, seminal vesicles, and adjoining tissues, the problem is considerably magnified, for we have to deal with a region difficult to reach, full of opportunities for latency, and pregnant with vicious possibilities. It is these cases which resist treatment, and become chronic in character, owing to the extensive organic structural changes which have taken place as a result of the inflammation.

Another thing to remember: In recent years it has become more and more evident that gonorrhea is no longer to be considered as a purely local disease. The literature on the subject indicates that practically every organ in the body is capable of infection by the gonococcus. Even the blood stream is not exempt. In sixty-seven cases examined by Lofaro (1), he found gonococci in the blood in 58.2 per cent. of cases of acute or chronic urethritis; in 100 per cent. of cases of chronic urethritis with stricture; in over sixty-six per cent. of cases with glandular involvement; in over seventy-three per cent. of cases with epididymitis.

The determination of the question of a cure will therefore depend largely upon whether the patient has suffered an infection of the simple, acute uncomplicated character, or one involving the deeper tissues, with a possible systemic involvement. In both classes of cases, however, practically the same series of examinations must be made before the answer can be given.

Generally speaking, in making our final examination to determine a cure, we have the following data to consider:

(a) Is there a discharge, and if so, does it harbor gonococci?

(b) Is the urine passed by the patient (preferably the first morning urine) clear, or does it contain pus and shreds, and if the latter, does it contain gonococci?

(c) Are the prostate and seminal vesicles normal or pathological, and if the latter, do they harbor gonococci?

(d) Is the anterior urethral mucosa normal, or does it give evidence of pathological lesions?

(e) Does the posterior urethra reveal pathological lesions, especially the verumontanum and prostatic sinuses?

It appears, therefore, that the examination to be made is necessarily of a formidable character, far different in fact from the perfunctory routine examination so often made in general practice. Gynecologists tell us that a large percentage of the radical surgery of the female genitals in married women is due to gonococcal infection transmitted by their husbands; the writer is convinced that many of these men have been discharged by their physicians because of the simple fact that the urine was clear, or because a single microscopic examination of the urine was found "negative to gonococci." There is

nothing more striking than the amount of confidence which the average practitioner places in a laboratory report which reads "negative to gonococci." This misplaced confidence is undoubtedly the cause of a large amount of innocent infection of women in marriage. Let us consider the data a little more carefully.

Discharge. A urethral discharge is not necessarily an evidence of the presence of gonorrhea, though it should always be regarded with misgiving. A man may be absolutely free from gonococci, and still have a morning drop or even a diurnal discharge. Whatever its character, or whenever it makes its appearance, the discharge must be examined frequently for a considerable time, under all possible conditions, before we can confidently conclude that it is devoid of gonococci. Not only should it be examined microscopically, but cultures should often be made, so as to corroborate, if possible, the microscopic findings. In order to determine the presence or absence of a urethral discharge for examination purposes, the patient should be seen in the morning, the urine having been retained all night. If, however, the patient is prevented from being examined with a full bladder, he should be given a glass slide, upon which to make a smear of his discharge. This practice, however, is not to be commended.

Of course, if gonococci are found in the discharge, the patient must be considered uncured without further examination, and treatment must be resumed.

If there is no discharge at any time, it is advisable to produce one for purposes of examination. Stripping the urethra is often productive of a few drops of secretion which can be examined microscopically; but this is a very undesirable procedure, as it often creates the "milking" habit in patients. These patients immediately upon their arising in the morning, start in to "milk" the penis, with the object of seeing whether there is any discharge or not. This practice leads to the development of a traumatic chronic nonspecific urethritis, beside constituting a cornerstone in the structure of neurasthenia. It is far better to obtain the secretion, if it must be obtained, by irritating the urethra with a bougie à boule, or by the injection of a solution of silver nitrate, which will bring about the same result. By passing a sound into the urethra and massaging the walls over it, the glandular follicles are emptied of their contents, and in this manner a discharge may often be obtained for examination. C. Bruhs (2) has shown that the injection of gonococcus vaccine is of value as a "provocative" agent and may cause latent gonococci to appear in the secretion. A few glasses of beer taken a few days before the examination may also accomplish this purpose.

The important thing in the examination of the discharge is to determine the presence or absence of gonococci. It is really of little moment whether pus cells, mucus, or epithelium predominate. The latter indicate the presence of a desquamative process, while the pus cells and mucus point to the existence of a catarrhal process. The thing to remember is that the discharge is infectious as long as gonococci are present. It is also important to remember that gonococci may be absent (i. e., not

found) today and present tomorrow. Their presence or absence is not constant. They remain latent in the deeper tissues of the mucosa, coming to the surface now and then when stirred up by instruments, alcohol, or sexual excess. They may be found deeply seated in the submucous infiltrate and in the glandular structures; their vitality may be retained for years. Consequently our examination of the discharge, whether spontaneous or artificially created, must be repeated at frequent intervals, and must be directed especially to the isolation and identification of the gonococcus.

Source of the discharge. It is not enough to find a discharge at the meatus; its origin must be carefully determined. Having taken a smear for examination, and a drop or two for culture, the anterior urethra is irrigated carefully with a bland solution, until the washings come forth perfectly clear. These washings are to be preserved for comparison with the patient's urine, and for microscopic and cultural examination.

The urine. The anterior urethra having been thoroughly cleansed by the irrigation, any foreign matter which the urine now contains must necessarily have its origin either in the posterior urethra, the bladder, or the upper urinary tract. Ordinarily, when the question of a cure of gonorrhea is being considered, we are not confronted, as a rule, with lesions involving the bladder or upper urinary tract. We may therefore assume, unless there is something to direct our suspicions to the contrary, that any pus or shreds passed by the patient have their origin in the prostatic urethra. It is wiser, however, to assume nothing, but to obtain proof wherever proof can be obtained. If there be any suspicion of involvement of the bladder or kidneys, it is advisable to resort to the author's five glass irrigation test (3), and thus determine to a certainty whether shreds or pus in the urine have their origin in the anterior urethra, posterior urethra, or bladder.

If the irrigation test shows the absence of shreds or pus in all the glasses, the urine having been retained all night, it is safe to conclude that there is no active process going on anywhere in the urinary tract. When, however, pus or shreds are found, and their source noted by the test just mentioned, the next step is to subject the centrifugated urine passed (two ounces are sufficient, the remainder being retained in the bladder) to microscopic examination and culture, to determine the presence or absence of gonococci. It is well to subject the clear urine to these same tests, for reasons of greater security. It is obvious that the washings from the anterior urethra also should be examined just as rigidly and carefully as the urine passed by the patient.

Prostate and seminal vesicles. The patient having passed one or two ounces of urine (leaving the remainder in the bladder), the prostate and seminal vesicles are now carefully examined, their outlines mapped out, and any irregularities in shape or substance noted. The prostate is now massaged gently yet vigorously, while a clean glass slide is held at the urinary meatus to collect any prostatic secretion that may be brought forth by the massage. With a bladder fairly filled, and a prostate moderately congested (as one might expect to find it after an

attack of gonorrhea), it is reasonable to expect quite a flow of secretion upon the slide. The quantity of secretion will depend upon whether the organ is "full" or "empty"; that is, if the patient has had coitus or a nocturnal emission within a few days before the examination, the prostate will be found "empty" or "dry"—there will be little or no secretion at the meatus notwithstanding the most energetic efforts at forcing out a few drops. If, on the other hand, however, the patient has not had coitus or an emission for some time, and the prostate is slightly congested in addition, the flow at the meatus will be more or less copious. This secretion should be examined microscopically and by culture. This is perhaps the most important of all the tests, particularly if the patient has been given a deep instillation of silver nitrate (one to two per cent.) a day or two before the examination. This instillation should always precede a microscopic examination of massaged prostatic secretion, in the subsequent examinations.

Stripping the seminal vesicles, whenever possible, should also be performed, and the secretion submitted to microscopic and cultural examination. It is the prostate and vesicles that are primarily responsible for most of the chronic infectious cases of gonorrhea.

Occasionally, in spite of the best efforts, a specimen of prostatic or vesicular secretion cannot be obtained by massage; in such cases, it becomes imperative to advise coitus by condom, and the seminal secretion thus obtained, is examined by microscope and culture.

Stricture. Having proceeded thus far, the anterior urethra is examined for stricture, using the Otis urethrometer in preference to the bougie à boule. A urethra which accommodates a No. 20-30 French, without interference or bleeding, may be considered normal, as far as stricture is concerned. Likewise if a No. 28-29 sound can be passed into the bladder without obstruction or bleeding, we may likewise consider the deeper portion of the urethra without stricture.

Anterior urethroscopy. The presence or absence of stricture having been determined, the anterior urethra is examined endoscopically to determine the character of the urethral mucosa. Granulations, infected and dilated follicles, infiltrations, polyps, or other pathological conditions are in this way discovered, and their proper treatment is decided upon. All of these conditions are not necessarily gonorrheal in character, nor do they attribute infectiousness to the patient. Infected and dilated follicles, however, should be looked upon generally as being of gonorrheal origin. The secretion contained in these glandular structures often harbors gonococci innumerable, which may remain latent for long periods and become active from time to time. Consequently all doubts as to the infectiousness of these follicles must be removed before the urethral mucosa can be considered absolutely safe. Stricture, polyps, and other nonspecific lesions (small meatus, for example), do not necessarily constitute a bar to matrimony; their presence, however, may act as a focus of irritation, which in turn may favor the persistence of the chronic inflammation, with its pus laden and infectious follicles and glands.

that surprised me not a little. Although 123 had defective digestion and 131 had defective teeth, in only nineteen did these conditions fall in the same individuals. I had thought that many more than nineteen of 131 people with defective teeth would have defective digestion, if from no other cause than imperfect mastication.

It is also interesting to note that of the ninety-two who presented cardiac derangements, only fourteen suffered from defective digestion, and only five had abnormal blood pressure, four being higher and one lower than normal. I am fully aware that many more points of interest could be extracted from our records, if enough time for the preparation of more elaborate statistical sheets, had been available. This study shows, however, that the extension to the community at large, of the plan now followed by the New York department of health in safeguarding the health of its employees, would add several years to the life of the average individual. Furthermore, in view of the recent surprising increase in the adult death rate, it would add to the most efficient years of life.

In closing, I should like to emphasize the great importance of maintaining the strictest confidence between the medical examiner and the persons examined, in any extension of this work to the community at large. In spite of any temptation that some heads of great organizations might feel to utilize the results of these examinations for the demotion or discharge of permanent employees, it would, I am convinced, be a serious blow to the popularity of this great movement, if the examinations were put to any such use.

It is also easy to understand how harm, instead of benefit, would result from these examinations, if those examined were given an exaggerated impression of the importance of their slight deviations from the normal. Therefore, it is imperative, for the success of this work, that it be done only by physicians of good diagnostic ability, considerable experience, and ripe conservative judgment.

HEMORRHOIDS AND HYPERCHLORHYDRIA.

By E. PALIER, M. D.,
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In spite of the frequency of hemorrhoids, the nature of this affection is not yet definitely established. According to some, and this is the older theory, it is a simple distention of the hemorrhoidal plexus due to a sluggish circulation in the hemorrhoidal veins, which in its turn is caused by a sluggish liver. Thus the liver is the primary cause. This is indeed in accord with the old guesswork medical notions, which ascribed most of the derangements of the gastrointestinal tract, where there are no apparent gross anatomical lesions, to an attack of biliousness. With the introduction of modern laboratory methods, however, which unfortunately are still being decried by some 'old wiseacres, who have had more luck and fortune than real knowledge, the attacks of biliousness are getting rarer, and the real causes of the affections are located and successfully treated.

The other, newer theory is that hemorrhoids are in the nature of a tumor, an angiofibroma, and this ailment has nothing to do with the hepatic circulation. Whether this theory is right from an anatomico-histological standpoint is not within my province to decide. But it appears to me that the liver is not responsible for this affection, and that it is falsely accused, at least in this case. Some years ago I had under treatment two patients, a sister and a brother. The former, a woman of forty years, had led an active life and was suffering from piles; the latter, a man of about sixty-five years, a private teacher, had led a sedentary life and had no piles. This apparent anomaly had puzzled me much. But the gastric conditions of the two patients were quite the opposite of one another. Whereas the sister suffered from marked hyperchlorhydria, there was hypochlorhydria amounting almost to achlorhydria in the case of the brother, so much so that in view of the patient's age, carcinoma ventriculi might have been suspected. But there was no malignancy.

In examining a number of other patients subsequently, I found that hemorrhoids are invariably accompanied by hyperchlorhydria, permanent or transient, which latter is described by some German authors also under the name of alimentary hyperchlorhydria. So much so that the diagnosis of hyperchlorhydria can be made by simply examining the rectum. If there are piles, the patient suffers from hyperchlorhydria. Of course, if there are no piles, it does not prove that there is no hyperchlorhydria. If an elderly patient suffers from a tumor in the rectum and the physician cannot decide whether it is piles or a cancer, an examination of the gastric contents will decide; achlorhydria speaks for cancer.

How hyperchlorhydria causes piles, I am not now ready to say; but the two go together, and the latter is much aggravated by the former. Hence the rationale of the treatment. I will not discuss operative interference. The fact is that many patients who get an acute attack of hemorrhoids are so situated that for one reason or another they cannot be laid up with an operation. Even if the patient decides to undergo an operation, it is best to have it done *à froid*, after the acute attack has subsided.

Everybody who has had some experience in the matter, either personal or from patients, knows that an acute attack of piles is a most painful affection. Opiates, whether internally or as suppositories, do not relieve the pain much and render the patient constipated and miserable. Laxatives or purgatives frequently aggravate the evil, as the frequent stools irritate the piles and cause pain, bleeding, and much misery. In fact, patients suffering from diarrhea get an attack of bleeding, painful piles after they have voided a number of stools. This fact also proves that it is not a sluggish portal circulation that causes the malady in question, because it appears also in profuse diarrhea, when the portal circulation is not clogged. That much bearing down at defecation and hard fecal matter will also aggravate piles is certain.

Now those patients who suffer from chronic piles will have their affection aggravated, and will get up an acute painful attack of it when their hyperchlorhydria is aggravated. I do not discuss here

the treatment of hyperchlorhydria, but of hemorrhoids. To treat the latter, do as follows: 1. Give the patient a teaspoonful of sodium bicarbonate. This alone will in many instances relieve the congestion and pain in half an hour, and if the patient was constipated, will cause a semisolid evacuation of the bowels with very little pain. In patients suffering from chronic constipation, *magnesia usta* can be given afterward. 2. It is best to give the patient in addition to the soda a hot sitz bath for about half an hour. 3. Put the patient in bed for the day and let him apply lead and opium lotion to the anus for a few hours. On the following morning the patient will be able to get up and attend to his business. He will be well or practically well as long as his stomach will remain in good condition. In those suffering from transient hyperchlorhydria the piles will get worse with the aggravation of the gastric condition. When hemorrhoids supervene during an attack of diarrhea, the latter must be checked, and the former will thereby be relieved. *Hamelis*, internally and locally, does good.

What has been said above applies to acute or subacute attacks or exacerbations of chronic hemorrhoids. As for the affection, while it is in a quiescent indolent state, the best thing is operative interference of some sort; but patients, as a rule, even intelligent ones, do not pay attention to this ailment while it does not bother them. By paying attention to their stomachs, patients can remain free from pain and bleeding of their hemorrhoids for many years.

180 LEXINGTON AVENUE.

THE UNTRUSTWORTHY GALENICALS.

A Consideration of Their Variations in Strength of Some Principles of Their Administration; and Their Variability in Therapeutic Results.

BY HENRY BEATES, JR., M. D.,
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Upon the broad principles of the law of cause and effect it may be affirmed that either like causes produce like effects, or that causes are followed by effects which, upon analysis, demonstrate the character or nature of the cause. Other things equal, it may be stated, therefore, that like causes produce like effects.

We have exemplification of this truth in the series of phenomena designated acute croupous or lobar pneumonia. The *diplococcus* of Friedländer or pneumococcus, having gained entrance into the human economy, under suitable conditions, evolves a toxic principle that causes the well known phenomena; a severe chill, occurring as a rule during the night, thoracic oppression, dyspnea, rapid temperature rise, intense frontal headache with its accompanying suffusion of face, rapid pulse, short dry painful cough, and an expression of distress and anxiety—which indicates the apprehension the victim experiences from the profound systemic toxemia of which the pulmonary symptoms are but a minor feature. We know that this toxic product possesses an especial affinity for the endothelial elements and their basement membrane, which compose the air vesicle, and that the effect of this toxin

is to cause to transude from the ultimate ramifications of the pulmonary artery, into the air vesicle, that peculiar coagulable exudate which gives us the so called stage of red hepatization.

Knowing the pathological processes characteristic of this *diplococcus* toxemia and the effects which the symptom complex proves, we have a demonstration through an analysis of these effects of what the cause of the malady is. Does contemplation of this illustration of cause and effect alter the point of view of the clinician when therapeutic procedure is a presenting problem?

When we know that pneumonia and pneumonitis are not synonymous terms, but that pneumonia is a systemic *diplococcus* toxemia, is there not cause for a more intelligent and masterful plan of treatment? Harrington Sansbury, in his *Principia Therapeutica*, sets forth in the prologue a governing fundamental principle that should underlie all therapeutic art, in the following words:

If it be true, as Plato, the master thinker, has said, that "an unexamined life is not worth living," then it must follow, since the greater contains the less, that an *unexamined practice is not worth practising*. It is for this reason, and because we are in peril of being engulfed in the ever rising flood of new remedies, that I have ventured to set down certain considerations, in the hope that they may prove of service to those who have undertaken to navigate the ship of health.

There are those who make light of general principles, knowledge of details their sole demand, but this point of view sees one side only of the shield, be it silver or gold as it shall please them; for whilst doubtless general principles without detail make but a foolish business, it is no less true that details without guiding principles yield but a busy foolishness. In default then of principles to guide, our ship of health is likely to find herself on a lee shore, in a welter of contending elements. We know that, in the main the lines of the ship are good, likewise the materials, unless misfortune or deliberate misuse have befallen her, we know that she is built for the great waters and the "enlarged winds," even if she be not so built as to defy shipwreck. We know also that the adventure of the voyage must be made, and made singly though we put to sea in fleets, and, further, that not generalities, nor averages will here avail but *individuality alone*. This being so our first care must be to make ourselves acquainted with the seaworthiness of the craft we have to captain. Upon this knowledge everything will depend in the hour of danger. When it is imperative that decision be taken; upon this knowledge we shall elect either to run before the wind and the pursuing seas, or, with shortened sail, and head to wind, ride out the gale.

The knowledge hereto required is something more than of sail area and soundness of timbers on the one hand, and of force of wind and waves upon the other. *The ship of health has its own motive power within, whose fires must be fed from its own stores*. How to spend, how to economize, now with a free hand, now with most niggardly parsimony, all will depend upon circumstances, for example, whether the nearest port be within reach, or the position on the chart of life be such as to forbid the hope of any shelter till the storm be spent.

In this problem, the composition of forces is complex to a degree, and the Science of Medicine very far from its solution, but by as much as it is thus distant, it makes room for the Art of Medicine. This art, we are told, is long, but something of the journey has been accomplished, and something garnered by the way, and the injunction is laid upon us, *not to forget, not to pass by, not to misuse the stores of experience and of knowledge thus laboriously acquired*.

Examining, then, medical practice is seen to consist of two principal types, preventive and curative, and to the latter space necessarily confines us.

Curative medicine is based upon sound knowledge of structure and function, anatomy and physiology,

and, of course, on those fundamental phenomena that underlie the actions of respective structures or organs as well as of their relationship one with another. It is this relationship of function with function as controlled by organ and organ, that the much neglected principles of "physiological equilibrium" or balance is maintained. Such equilibrium or balance is health. Their characteristics seen in the numerous manifestations of functional activity, demonstrate one complete and acting whole, of which each individual is an exemplification. The persistence with which the equilibrium or balance is maintained confronts us with phases of physiological equilibrium, which it is impracticable for us to touch upon here; suffice it to state that knowledge does exist of the fact, that when the equilibrium is disturbed by this or that toxic principle, the right or proper administration of medicine will, in a very large proportion of instances, restore equilibrium.

Thus we face the subject, and from a necessarily limited aspect, that of the galenicals. We first find these preparations official, next that this *materia medica* has a closely related pharmacopœia, which is the standard work or authority that directs how to prepare the sixty-four tinctures. Before examining these galenicals, permit allusion to another fact associated with physiological equilibrium, and that fact is, that when a disturbed equilibrium is restored it remains so indefinitely. Do not overlook another very important fact, to wit, that no matter how profoundly physiological equilibrium may have been disturbed, the cells, tissues, or organs affected tend to recover balance. This is another manner of expressing or defining *Vis medicatrix nature*.

Empirical medicine has discovered facts of equal importance, viz., that certain medicines administered in a disturbed physiological balance unquestionably do materially aid, very positively and powerfully, in restoring balance. Do not overlook the fact previously noted, that when physiological equilibrium has been restored, *it very commonly remains restored*. Illustrative of this truth is the relief of nerve pain by hypodermic injection of morphine. Not infrequently the relief from suffering which is thus so promptly secured or, preferably expressed, the equilibrium thereby reestablished, is maintained for years; indeed indefinitely. Surely this immunity from a return of the symptoms cannot be due to a peculiar chemical or biochemical compound formed between the remedy administered and the protoplasmic elements of the nerve cells concerned. The only rational interpretation of the result is that the drug does not remain during all these years of freedom from suffering, but that the reestablished physiological equilibrium does so remain.

The well known maintenance of this physiological equilibrium which digitalis therapy secures in cardiac and circulatory diseases, illustrates the same fact, and because this vital balance has been overlooked or forgotten, some investigators have searched in vain for evidences of some peculiar biochemical compound in the excretions and secretions of patients and animals subjected to treatment, and because the analysis has proved futile, the most untenable theories as to how medicines "cured" or

relieved the circulatory defects have been advanced, and this to the prevention of proper treatment by those adequately informed as to facts.

These apparently irrelevant matters are brought to notice because they involve principles of mentation seriously affecting processes of conclusion regarding the use of all galenicals by clinicians, and thus are confidence and faith in the administration of medicines destroyed and therapeutic art degraded, and even too generally ignored. It is erroneous procedure that thus conditions the establishment of dogma, and founds so called schools of medicine. Nay, more, and, what is worse, constitutes the cause of all causes resulting in the loss of confidence in the efficacy of *materia medica*.

A little logical consideration of these briefly stated facts renders it easy to understand the unparalleled opportunities for the commercializing of innumerable "new remedies" which a thoughtless profession is only too ready to adopt in an offhand manner. The rewards of such a course are seen already in desertion from *materia medica* and the growth and development of drug nihilism.

The facts which empirical medicine has discovered, although largely incapable of being "scientifically" explained, are ignored, our idols are being cast down, iconoclasm is rampant, and charlatanism, ever alert to seize opportunity, is at the breach, and rushes in to gather and destroy.

Think of the infectious pathological processes endangering health and life that are subjected to treatments based upon the most absurd and baseless theories: how the facts of pathology are brushed aside by unprincipled and ignorant distortions of the facts of structure and function, and how, to those insufficiently possessed of honor and conscience, money gains lead astray; consider how commonly the horrible vortex engulfs the superficial and ill prepared, and finds doctors in large numbers abandoning well established standards and facts and following colors exponent of they know not what! The fascinating fresh air, pure food, and sunlight slogan is emblazoned on their banners, and sophistry is shrewdly employed to destroy faith in the power of medicine properly administered, to relieve and cure disease.

If the *Vis medicatrix nature* was not a stern reality, medical science and its art should not be, and the healing art should logically be regarded as vain and useless. Medicines, let it be emphasized, are realities and, properly used, are capable of restoring lost physiological equilibrium with as great certainty as their failure to achieve such a result, *if improperly administered*.

Remedies do not always effect their results by exerting locally their corrective forces and power, but by indirect processes, whereby interdependent and coordinating vital actions are set in motion, the entire human mechanism becomes involved, and thus equilibrium is restored. Again the inherent curative power, with which cells as well as groups of cells are endowed, is directly rendered active. It is the characteristic effects that give us the well known classification into, for example, sialogogues, diaphoretics, somnificants, analgesics, excitomorphs, antispasmodics, oxytoxics, mydriatics, etc. When it is recalled how disease processes affect the

secretion of saliva, the activity of the skin, sleep, the alteration of sensation, the reflexes, the pupil, etc., it certainly is rational to administer those medicines which experience has taught us, possess the power to correct the disturbed equilibrium of these respective functions. An analgesic properly administered relieves and cures pain; a cholagogue restores the bile functions of the liver; an inhibited kidney activity is overcome by a diuretic, etc. Thus is the *Vis medicatrix naturæ* aided in effecting restoration of physiological equilibrium.

If clinicians would familiarize themselves with these facts and not be sidetracked by false gods, concentrate their intellects upon open minded study, the healing art would in the near future occupy her proper place in the esteem and confidence of suffering humanity, and find a trusting public placing within her keeping its most sacred and important interests.

These observations bring us to my theme, which deals with one potent cause of the loss of faith by the laity in medical art, as well as what is more disastrous, the loss of confidence in *materia medica* by a large proportion of the medical profession. Let us see why. The galenicals, being derived from the vegetable kingdom, must vary in activity of effect, in the absence of standardization, with the natural variations in strength which characterize that kingdom. This fact of nature and, let it be repeated, it is a fact, well known, but too frequently overlooked or ignored, is that no two leaves, pieces of bark, rhizomes, seeds, or fruits contain a constant percentage of any active principle. No two apples, peaches, or grapes, for illustration, contain the same degree of flavor, sweetness, or sourness. Do not forget that contrary principles, as sweetness and sourness, coexist in the same leaf, seed, bark, or fruit. Think seriously of this, because the efficiency of all galenicals depends absolutely upon the proportion of the active principles contained.

Let it be emphasized that, in the absence of standardization, because in Nature there is no invariable unit of active principle in any given unit of crude drug, it is absolutely impossible to find two of any one tincture, infusion, or extract possessing uniformity of strength and, hence, of effect, in the same dose. Any galenical compounded by two different pharmacists, or any one galenical prepared by one pharmacist from two separate quantities of crude material, cannot possibly exert the same degree of action. Doses, therefore, other things being equal, must necessarily differ widely in order to secure uniformity of result. This being true, contemplate what is involved if the conventionally taught doses are adhered to, and the administration of galenicals is not intelligently supervised and modified to meet all the variations of condition; success cannot be secured by any haphazard prescribing.

The next fact to be considered is that in Nature we frequently find principles of a contrarily acting type in the one plant. Digitonin and digitoxin, veratroidia and jervia, serve to exemplify this. Contemplation of this fact may supply rational grounds for the necessary but apparently antagonistic prescription which competent clinicians at times recog-

nize to be the best. Morphine in combination with atropine well illustrates this.

Complexity of composition, as well as antagonistic action, is well illustrated by that much administered remedy, opium. Its alkaloids present in ever varying proportions are morphine, codeine, narceine, narcotine, thebaine, papaverine, cryptopine, meconidine, and paramorphine, also meconic, thebolactic, and sulphuric acids, gum, extractive matter, glucose, fixed oils, a volatile odorous principle, and other comparatively unimportant substances. What, may it not be pertinently asked, are you giving your patient, when you administer a dose of opium?

For a moment glance at a contrarily acting medicine, belladonna. Of the solanaceæ this group comprises *Atropa belladonna*, *Datura stramonium*, *Scopolia carniolica*, and *Hyoscyamus niger*. These contain a number of alkaloidal active principles, but medicine has used atropine, hyoscyamine, scopolamine, and hyoscine. Atropine is certainly not somnifacient, but hyoscine and scopolamine are.

These active principles, like those of every galenical, vary in their percentage, therefore the question may logically be repeated, What is the patient getting when the galenicals of this group are administered? And, again, what results are to be anticipated if adherence to the conventional doses and frequency of administration obtains—twenty drops in water three times daily? Is the remedy useless, the doctor unfit, or the sufferer beyond relief and cure? One, but a less complex medicine will be mentioned, *nux vomica*. Its active principles are strychnine and brucine and both are in combination with igasuric acid, a substance said to be identical with malic acid.

The action of a given galenical of this drug is fairly constant, and this being so, may cause the opinion to prevail that the same reliance that is placed upon this simple medicament is to be reposed in the more complex. A greater mistake cannot be conjectured; indeed, each remedy is a law unto itself.

Sufficient has been said to demonstrate the truth of our title. These variations upon examination are discovered to differ so widely that a given quantity may be almost inert on the one hand, and approximately up to standard on the other. *Digitalis* leaves vary in price from forty cents to a dollar and a quarter a pound, for illustration, which may be one of the reasons for this very great difference, and serve as an argument for the prevention by law of the sale of any crude drug but the best. Another grave and most serious matter that explains the wide variations in strength and, therefore, differing results in galenical administration, is disclosed by examining into the methods of manufacture of these galenicals. Let us select the tinctures. They are made by percolation, maceration, solution, or dilution. The menstrua used are alcohol, dilute alcohol of various strengths, and mixtures of alcohol, water, and glycerin.

Years of experience have taught the pharmacist that widely different proportions of alcohol and water are requisite completely to exhaust all of the active principles desired, without also extracting the inert and undesirable matters. In the weak

tinctures for which large doses are recommended, it not infrequently happens that "the alcohol effects more than balance those of the remedy prescribed." In such, the use of the fluidextracts obviates the undesirable stimulant action of the alcohol. Some tinctures are in danger of having their active principles neutralized by the alcohol.

Alcohol mixes freely with water, ether, and acetic acid, a number of volatile oils, and dissolves resins, tannic acid, chlorophyll, the alkaloids, and balsams, while dilute alcohol extracts the gums, extractives, chlorophyll, albumin, coloring matters, resins, volatile oils, alkaloids, sugar, tannin, and many other component principles of the vegetable kingdom. Remember also that these active principles, which vary so greatly in their percentage in the crude drug also vary widely in their solubility in alcohol, water, and the dilutions of alcohol.

When all these facts are considered, also that active principles deteriorate, and that, therefore, tinctures lose strength with age; that being kept on shelves exposed to heat, light, and atmospheric variations—what do we administer when tincture this or that is prescribed in conventional doses, and ordered to be given at conventional periods of time—"twenty drops, three times daily, in water." Is it any wonder that what is considered eminent authority teaches therapeutic principles which are flatly contradictory. In all literature can there be found such diametrically antagonistic teaching as in that of therapeutics? We all readily recall how eminent authority has taught that digitalis is a circulatory sedative, and equally eminent authority, the reverse.

Further space need not be taken, for surely sufficient has been advanced to sustain the fact that galenicals in the absence of standardization, necessarily vary in strength and activity to such an extent as to render them unreliable for use where accuracy of administration and certainty of result are to be looked for.

Surely if these facts are facts, and who dares deny, the literature of therapeutics must be rewritten. Active principles must replace the galenicals and their physiological actions determined, standardization must generally obtain, so that by intelligent use the foundations of the healing art will be securely laid, and the fact that there are agents capable of relieving and curing disease will be accepted by the medical profession, and the treatment of afflicted humanity will be based upon laws, conformity with which is essential for the highest success of the clinician.

260 SOUTH SEVENTEENTH STREET.

Local Uses of Salvarsan.—Achard, in *Monde médical* for January 5, 1914, reports prompt cures in cases of Vincent's angina by the local application of salvarsan. Netter, he states, has likewise treated cases of necrotic stomatitis following scarlet fever. The drug has proved useful in pyorrhœa alveolaris. Leg ulcers treated with a ten per cent. salvarsan ointment heal rapidly. Lévy-Bing obtained excellent results from the application of neosalvarsan in chancre and ulcerations of the genitals showing a phagedenic tendency.

THE LAPLACE OPERATION.*

Secondary Closure of the Abdominal Wound Following Operation and Drainage for Purulent Appendicitis; With Presentation of an Illustrative Case.

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The patient whom I discuss illustrates three points: First, this man had an acute appendicitis with abscess formation which was operated upon, the abdominal cavity drained, and the wound closed on the ninth day with restoration of the abdominal wall. Second, the infecting organism was the colon bacillus, which has a peculiar behavior at times in appendicitis; and, third, the patient had a severe glycosuria.

CASE. W. J., male, aged thirty years, white, married, born in United States. Machinist by occupation. Was operated upon by me at the Medico-Chirurgical Hospital on the fifth day of an acute appendicitis, September 12, 1914. Patient had had attacks of indigestion off and on for four years. Had one attack of pain of three days' duration more severe than the others three years ago.

Physical examination showed a mass in the right iliac fossa; abdominal wall was rigid, and tender to the touch. Urinalysis showed the presence of six per cent. of glucose. Temperature, 99.2° F.; pulse, 66. Blood: Erythrocytes, 4,030,000; hemoglobin, 70 per cent.; leucocytes, 9,400. Differential count: Polymorphonuclear neutrophils, 68; lymphocytes, small, 21; lymphocytes, large, 10; transitional, 1.

The operation was done under ether anesthesia. An incision about twelve cm. long was made through the right side of the abdominal wall at the outer margin of right rectus abdominis directly over the mass. Upon entering the abdominal cavity, an abscess containing about four ounces of pus was found in the right iliac fossa, limited on the inside by the cecum and ileum, on the outside by the abdominal wall and great omentum, which had reached over and extended itself around the abscess cavity. The appendix was gangrenous, and about the length and thickness of my ring finger, was curved, and occupied an upward and inward direction to the outer side of the cecum. The parts were disturbed as little as possible; the abscess was sponged out with small gauze sponges held in hemostatic forceps, the outer wall of the cecum gently pushed inward, exposing the appendix, which was grasped at its base with two hemostatic forceps, ligated on its proximal side with iodine catgut, divided between the forceps, dissected free with scissors from base toward apex, and entirely removed; the meso-appendix was ligated, and the stump of the appendix inverted with a pursestring suture. Two gauze wick drains inclosed in rubber tissue, and a glass tube were used for drainage; the gauze drains, one outside the cecum up toward the liver, the other at the site of the appendix, and the glass tube in the pelvis. The patient was returned to bed, placed in the Fowler position, and Murphy treatment by bowel was begun. The wound was dressed daily, the glass tube removed on the third day, packing in wound changed daily after the third day and con-

*Read before the Philadelphia County Medical Society, November 11, 1914.

tinued until the ninth day, when the patient was taken to the operating room, given a little ether, the abdominal wall around the wound prepared, and the wound closed.

The following is the Laplace procedure of dealing with the peritoneum at time of operation, and the method of subsequent closure of wound. The peritoneum is grasped in hemostatic forceps, drawn up and attached along the entire length of incision on both sides to the skin by using interrupted silkworm gut sutures on each side, and outer dressing applied. The fixing of the peritoneum to the skin prevents its retraction, one knows just where to find it later, and when it is separated from the skin it leaves a nice fresh wound surface.

In closing the wound the stitches uniting the peritoneum to the skin are cut with a scalpel, the peritoneum is separated from the skin, dissected free from the surface of the wound, exposing fascia, muscular aponeurosis, muscles, etc., just as nicely as at the primary incision. The wall of granulating tissue surrounding the original abscess is left undisturbed, and the wound is closed as in primary closure. This is done by using through and through interrupted sutures of silkworm gut; catgut should not be used as it may become infected. A small rubber drainage tube may be inserted between the lips of the wound, if desired. I did not use any drainage. Care must be taken not to injure the bowel which lies close to the edge of the wound.

Of course one would not attempt to close a wound in cases that remain septic, or when there are other complicating conditions, but only in those cases which clear up and drainage ceases, while convalescence waits the granulation of the wound. The watchword is the patient's life, first, last and always. Now, what does this do for the patient? In the first place, the patient's abdominal wall is restored, and this is most important. Secondly, the likelihood of an incisional hernia is no greater than if the abdominal wound were closed as in a nondrainage case. Thirdly, the period of remaining in the hospital is shortened and the patient returns to his employment much earlier than when the wound closes by granulation; and, finally, the patient does not have to undergo another operation for the cure of an incisional hernia. Lastly, let us say that he does not need the service of the social worker to find another kind of employment for him in the event of his occupation demanding laborious work.

Drainage in these cases may be continued only four, five, or more days, depending upon the character and severity of the case. Within a few days the pouring out of serum from the wound by the Murphy treatment has rendered the wound clean and made closure safe. In some cases it may be necessary to continue drainage for two weeks, but the wound is just as easily closed at that time as at any other.

The wound in this patient was closed on the ninth day after the operation. The sutures were removed on the eighteenth day, or nine days after closing the wound. The patient got out of bed on the twenty-first day, returned to his home on the twenty-third day, and resumed work as a machinist on the thirtieth day. The time of convalescence may in many cases be materially shortened.

Colon bacillus infection above all others may in these cases—that is, in appendicitis—produce but slight elevation of temperature. Therefore, one may be misled as to the gravity of the case, unless one bears this fact in mind. Of course, surgeons of experience are familiar with this fact, but the attending physician upon whose interpretation of the case often depends the life of the patient, should bear this in mind.

Now as to the presence of glycosuria in this patient. This man did not know that he had glucose until the urine was examined before the operation. Therefore, we do not know how long or short a time it had been present. It cleared up after the operation, as it would doubtless have done without an operation if properly treated. However, it entirely disappeared and has since remained absent on an antidiabetic diet plus two medium sized potatoes a day. He has gained five pounds in weight since the operation. There is no more indigestion. Carbohydrate food will be still further added to his diet and his carbohydrate tolerance determined. It is more than likely that this man had glucose in his urine for some time, as he later told me that he had been losing weight for the past twelve years.

It seems to me that the more we study disease of the pancreas and the frequency of the presence of glucose in the urine in connection with acute infectious surgical lesions as in this case, the nearer we approach the etiology and prevention if not the cure of diabetes in a percentage of cases, at least by surgical operation with removal of the various seats of infection.

1934 CHESTNUT STREET.

THE MODERN TREATMENT OF SCIATICA.*

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Sir William Gowers defines sciatica as a painful affection of the nerve not due to any morbid processes outside it; in other words, a neuralgia, or a neuritis of the sciatic nerve. In its strictest sense the term is confined to a neuralgia only.

The sciatic nerve is the largest nerve in the human body. It arises from the sacral plexus and is practically a continuation of its apex. It passes through the pelvis and emerges through the sacro-sciatic foramen, continues along the dorsal surface of the thigh to about the middle, where it divides into the external and internal popliteal nerves, which are practically integral parts of the sciatic nerve. The sciatic nerve may be pressed upon, or invaded by disease of the soft and bony structures along its course as well as by neoplasms of neighboring lumbosacral regions of its course. Affection of certain parts of the cord and cauda equina may also bring about a syndrome simulating sciatica.

Idiopathic sciatica must therefore be differentiated from the following conditions: Tumors, and other affections, of the cauda equina as well as the lower part of the spinal cord including the conus; caries

*Read before the East New York Medical Society, April 30, 1914.

of the lower vertebræ; hip joint disease; diseases of the sacroiliac synchondrosis; intrapelvic inflammations and tumors; tumors and inflammations of the femur; myositis of the surrounding muscles; intermittent claudication; finally, flat feet.

In sciatica the patient at first complains of an uneasy, throbbing sensation in the dorsum of the thigh with some tenderness at the seat. In a day or two these sensations develop into sticking, tearing, boring, and even lightninglike pains along the distribution of the sciatic nerve and its subdivisions; the patient is able to outline the course of the sciatic nerve. The pain may be remittent in character with sharp, nocturnal exacerbations. In walking, the patient favors the affected limb, and while lying down holds it in a flexed position with the thigh abducted. In order to relieve the affected side he throws his trunk toward the opposite side and thus a scoliosis may develop—ischias scoliotica. The patient sits usually on the tuber ischii of the healthy side; in general he does not favor one position very long.

Particularly characteristic are the so called tender spots; they are found along the course of the sciatic nerve, most frequently at the following locations: 1. The posterior superior iliac spine; 2, the exit of the nerve from the sacrosiatic foramen; 3, between the trochanter major and the tuber ischii; 4, the middle of the popliteal space; 5, the head of the fibula; 6, the malleolus. Not all of these spots may be tender but they usually are.

A symptom more constant is the pain elicited by stretching the nerve; this is the Lasègue sign: to demonstrate it the hip is flexed on the abdomen and the leg extended. The procedure is very painful, but the pain disappears as soon as the leg is allowed to resume its previous position.

As a rule there are no sensory disturbances. A slight hyperesthesia may be present. The knee jerks are usually increased, and quite often there is a diminution and even an absence of the Achilles reflex on the affected side. Where the sciatica is due to an actual neuritis the usual signs of that affection are present. These are sensory changes, atrophies, change in electrical reactions, fibrillary twitching, etc. Glycosuria may be present.

Diseases of the cauda equina give the characteristic sensory disturbances confined to the roots involved. Thus we may have anesthesia, analgesia, and thermanalgesia of the plantar surface, dorsum of leg, thigh, buttocks, perineum, and external genitalia when the first, second, third, fourth, and fifth sacral roots respectively are involved; or we may have the same sensory disturbances when the lumbar roots are involved. Beside the sensory disturbances, there are also changes in the superficial and deep reflexes, motor changes, atrophies, and electrical reaction to degeneration in the various muscles supplied by the above mentioned nerves. The symptoms are only for a short while confined to one side.

In affections of the spinal cord there is bladder and rectal retention, or incontinence, beside the sensory and motor changes enumerated above. In vertebral caries we may get a history of tuberculosis elsewhere, tenderness or deformity over the spines of the vertebræ, often a rise of temperature; the diagnosis can be confirmed by x ray examination.

In hip diseases the pain is usually confined to the hip and knee and does not follow the distribution of the nerve. In cases of this kind, striking the head of the femur against the acetabulum is particularly painful; this symptom can be best elicited by tapping the heel while the Lasègue sign is absent. In arthritis of the sacroiliac synchondrosis, abduction is very painful, and tenderness on pressure at that point may be discovered when the examiner presses on the brim of the ilium while the patient is lying on the opposite side. Intrapelvic inflammations or tumors are recognized by the usual routine, i. e., rectal or vaginal examination and by symptoms referring to the various pelvic organs. Diseases or tumors of the femur may be recognized by palpation or by x ray examination.

In myositis the pain is more diffuse, the characteristic tender spots of sciatica are absent, and tenderness is confined mainly to the insertions of the muscles.

Intermittent claudication is a disease found mainly among Russian Jews in this country, and it is worth while to dilate a little thereon. Charcot was the first to describe this disease, in 1859. The patient usually complains of a dull pain in one or both legs and of cramps during walking; he must stop every now and then until the cramp passes away. As the disease progresses these symptoms recur more frequently, and the patient must stop after taking a few steps. Finally the pain occurs even when he is resting. There are distinct vasomotor symptoms, such as cyanosis, pallor, and sensation of cold. The pulse in the dorsalis pedis and tibialis posticus is commonly absent. The disease is due to an endarteritis and terminates in gangrene. Recently it has been proved that when seen early it may be benefited by baking the extremity, by anastomosis of vein and artery, and by eliminating the etiological factors of which nicotine and pyridine are the most important. Flat foot is easily excluded, but every case of sciatic pain should be examined for this condition.

We see, therefore, that from the subjective symptoms alone a diagnosis of sciatica must not be made. It is important to make a sensory and motor examination; examine the spine, the joints and reflexes, vagina and rectum; palpate the bloodvessels. Finally uranalysis must be done. The latter is important inasmuch as it may throw light on the etiology of the affection. Having come to the conclusion that we are dealing with a neuralgia of the sciatic nerve, treatment is general, systemic, and local.

The following is an outline of the treatment of fifty cases both in the service of Dr. I. Abrahamson (to whom I am indebted for the privilege of reporting these cases), at the Central and Neurological Hospital as well as in the writer's private practice:

Sciatica, as well as any other neuralgia, may be the expression of some constitutional disease, or loss of metabolic equilibrium; it is therefore of the utmost importance to investigate the etiology of this affection. Rheumatism, gout, anemia, or quite often diabetes is found to be the underlying cause. These diseases, when present, must receive appropriate treatment. One should also think of malaria and particularly of syphilis; in connection with the latter

it will not be amiss to state here that the earliest symptom of tabes, the shooting pains, often simulate sciatica; this is particularly true in double sciatica.

General treatment should therefore be based on the etiological factors. The diet should be free of purin bodies; a lactovegetarian diet is best suited. When diabetes is present the diet should be adjusted accordingly. Of drugs, aspirin in large doses, when the kidneys are not affected, is often of benefit. The opiates must be used sparingly, and great care should be taken not to produce a habit. It is best to put the patient to bed and if possible to immobilize the extremity. Hot applications are often favored and counterirritation in the form of a Paquelin cautery, or small pieces of about a square inch of cantharides plaster along the nerve may relieve the pain. Electrical treatment is frequently of great benefit; the best form is the high frequency d'Arsonval current: the patient is placed on his abdomen, which rests on a six inch square electrode, while a smaller electrode is applied along the course of the nerve and as high as 1,000 ma. may be given, though care must be taken not to burn the patient. Each time before the electrode is removed the current should be disconnected. The d'Arsonval current is particularly beneficial in the chronic cases, and massage is also of great value.

When all these methods fail, the injection treatment is indicated. Two methods are used, the infiltration of the nerve directly and the epidural injection. Lange devised the infiltration method and reported a number of cures. We employed it with a limited number of patients, but had only moderate success. The method is to inject into the perineural tissues a large quantity of isotonic or physiological salt solution and thus compress the nerve. The patient is placed on the opposite side, and the affected limb is flexed at the hip. A point, comparatively easy to recognize, for it is usually tender in sciatica, is selected midway between the tuber ischii and great trochanter. The area is thoroughly cleansed and painted with tincture of iodine, and a sterile needle is introduced deep into the tissues, great care being exercised not to transfix the nerve; when it is properly introduced the patient will complain of pain in the toes, or of electric shocks throughout the extremity as soon as the needle touches the nerve. At times, Lange states, twitches are observed. When the perineural tissues are reached about 150 to 200 c. c. of sterile normal salt solution is injected through the needle. The procedure is painful.

The symptoms of sciatica may disappear soon after the injection, the site of which is painful, however, for some time. The objections to this method are the danger of injuring the nerve or bloodvessel; the uncertainty of results; and the painfulness of the process.

The second method, the epidural injection, was devised by Cathelin and perfected by Lâwen. A certain quantity of salt solution mixed with novocaine is injected into the sacral canal; this compresses and partially anesthetizes the nerve roots and is carried out in the following manner: To 100 c. c. of a sterile, physiological salt solution, four c. c. of five per cent. novocaine is added. A two inch needle for ordinary individuals, or a three to four

inch needle for stout patients, and a twenty c. c. syringe are rendered aseptic. The patient is placed in the knee chest position. The lower part of the spine is scrubbed and washed deep into the gluteal sulcus. The area is then painted with tincture of iodine. Under strict asepsis, the operator having sterilized his hands as for a major operation, the needle is introduced in the middle line between the two sacral cornua which mark the edges of the sacral hiatus. The needle is passed gently forward until bone is reached; it is then slightly withdrawn and passed upward to its full length. The solution is then injected through the needle.

When the needle is properly introduced the solution flows with ease without the necessity of using any more force than if injecting into empty space. No edema of the skin must be produced, for this indicates that the needle is not in the canal. After about fifty c. c. are injected, a certain amount of resistance is encountered; if this becomes high we usually stop, otherwise the entire 100 c. c. is injected. Usually no preliminary local anesthesia is required. Pain during injection is almost nil. The patient complains only of paresthesia in the extremities toward the end of the injection, although some of the patients complained for a few days of pain at the site of the injection. In eight of our patients the sciatic pains ceased immediately and only one injection was used. The tender spots disappeared at once in four of our patients. In the rest, two, three, and four injections had to be given, varying from two days to two weeks apart. One case injected by Doctor Price, house physician of the Neurological and Central Hospital, is worth mentioning. This was an Italian laborer, forty-five years old, who was sent to the hospital by the Department of Charities, having suffered from sciatica for months. He was relieved immediately after the injection. On the second day he wanted to leave the hospital. He was discharged cured a week later. He came occasionally to tell us that he continued his work as a laborer. Another remarkable case was a Jewish woman, Mrs. K., sixty years old, who had suffered from sciatica for weeks. An injection into the nerve directly only partially relieved her; the pains returned a few days later. An epidural injection stopped the pain immediately.

We tried this also in tabes, but it only gave temporary results.

There is, however, one type of sciatica—the so called hysterical sciatica—where we believe the epidural injection is contraindicated; in our two cases not only did it not relieve the symptoms, but apparently it helped the patient to concentrate her mind more intensely on her psychic pains.

252 EAST BROADWAY.

Treatment of Mycosis fungoides.—Wolff, in the *New Orleans Medical and Surgical Journal* for July, 1914, it is stated, obtained excellent results in three cases of this very obstinate affection with injections of sodium arsenite and sodium arsenate. In the case of a man, aged thirty-three years, a diffuse papillomatous eruption disappeared completely after seventy injections of sodium arsenite. The patient remained well for three years, when two papillomatous lesions appeared upon the chin.

SUBACROMIAL BURSTITIS.

BY STERLING O. FIELDS, M.D.,

Newport News, Va.,

Junior Surgeon, Whitaker Memorial Hospital

It was not until Codman's paper, in 1906, that any considerable interest was manifested by the profession in the subject of subacromial bursitis. Prior to that time the symptoms resulting from affections of the sac were ascribed to "rheumatism" (our lifelong friend), contusion of the deltoid muscle or of the bony structures in the vicinity, sprains of the shoulder joint, and what not. Of late years, however, we have grown to appreciate the proper role of lesions of the bursa in the production of stiff and painful shoulders; moreover, the greater proportion of stiff, painful, and disabled shoulders. But it is startling to realize that today the lesion with its unmistakable signs and symptoms and its untoward results, is so often overlooked by the physician, simply because he does not bear such a condition in mind.

The subacromial bursa, as its name implies, lies beneath the acromion process, being interposed between the major tuberosity of the humerus and the tendinous expansion of the supraspinatus below, and the deltoid, the coracoacromial ligament, and the acromial process above. Formerly it was believed that there existed two separate and distinct bursae—the subdeltoid and the subacromial—but we have learned now that the so called subdeltoid bursa represents merely an extension of the subacromial. The sac is a modified connective tissue space lined by an imperfect cellular layer, and contains a small quantity of fluid for lubricating purposes. The purpose of the sac is to exercise a ball-bearing function, especially in motions of the shoulder involving abduction and rotation.

The statement that trauma, especially of the shoulder directly, is the chief factor in the production of the affection finds such wide expression in textbooks and has gained such credence, that one hesitates naturally to express an opinion of doubt. It has always seemed to the writer, from a consideration of the anatomical relationships of the sac, that, with the exception of that portion intervening between the deltoid and the major tuberosity, it was fairly well protected from the influence of direct shoulder trauma, and that any injury (direct) sufficient to produce an inflammatory lesion, would of necessity cause tremendous damage to surrounding structures. Moreover, blows over the subdeltoid portion of the bursa have not the etiological importance in causing the condition that is so often attached to them, for the buffer effect of the deltoid muscle is not inconsiderable. Falls have decidedly a greater etiological role; but not falls on the shoulder, as so commonly stated, for a fall on the shoulder has been shown to be well nigh impossible, the falling individual invariably exhibiting a tendency, consciously or unconsciously, to throw out the hand or elbow on the threatened side to catch the force of the impact. The assumption is warranted, therefore, that the force resulting from the fall travels up the abducted arm and damages the bursa between the major tuberosity of the humerus and the acromion, the fibrous expansion of the supraspinatus serving

not in the least as a buffer. Certain it is, that in those cases of subacromial bursitis coming under the writer's observation, chiefly in laborers on the river front, among the traumatic factors the proportion of blows upon the shoulder was remarkably small, that of falls upon the shoulder practically nil (after both close questioning of patient and witnesses and also careful examination), and the proportion of falls upon the elbow and outstretched hand—greatest of all. The factor of prolonged and excessive use of the shoulder by untrained and inexperienced men, especially in abduction and rotation, implying as it does fibrillary tears of the tendon of the supraspinatus and consequent involvement of the bursa which is intimately associated with the tendon of that muscle, should not be forgotten; though it does not seem to be a very potent factor. The writer saw this factor active only once, in the case of a new stevedore who tried to keep pace with the older hands in his work.

In reading our standard textbooks, one who is interested in the subject of subacromial bursitis cannot fail to marvel at the slight emphasis laid on the infective side of the subject. At most the majority of our standard surgical works merely make casual mention of sepsis, gonorrhea, etc., as occasional causes of the affection. In the perfunctory regard for infection as a factor in the production of the lesion may be read the counterpart of the tenacity with which we held on to "rheumatism," "lithemia," and trauma as causes of infectious inflammatory diseases of joints. The writer had the importance of infection in subacromial bursitis forced upon his notice by observing the not inconsiderable proportion of cases of the affection which followed newly contracted gonorrheal urethritis, or the flaring up of an old "cured" or latent gonorrhea. In these cases in which the painful, crippled, and tender shoulder was preceded by the manifestations of gonorrheal urethritis, it was possible to obtain in every instance the information that the shoulder gave no trouble until the patient had worked himself to the point of exhaustion, contracted a cold from becoming chilled at the dinner hour, or indulged in a spree, about three weeks after his Neisserian infection. In more than one instance a history of a sensation of chilliness, general malaise, and feverishness preceding the shoulder pain by a few hours, could be elicited. In two other cases the bursal symptoms developed about two weeks and a half after severe attacks of tonsillitis, suggesting the possibility that the tonsils are capable of playing the same role in the production of bursitis as in the production of arthritis. In none of these cases of infectious bursal inflammation was there a history of any shoulder trauma, either direct or indirect. Thus there is an apparent analogy between metastatic arthritis and the infectious bursitides.

Clinically, subacromial bursitis presents in nearly every instance, a sufficiently clear picture for a definite diagnosis, and the frequency with which the affection is overlooked and the symptoms ascribed to some other condition, almost constitutes an accusation of want of care on the part of the physician. True it is, that not every case presents the three stages of Codman in a clean cut manner, for there is not infrequently such an overlapping that

the attempt to make a textbook diagnosis meets with confusion owing to the failure of the clinical manifestations to adhere to the beaten track.

Pain, tenderness, and limited disability in the shoulder region succeeding trauma, or following after an interval of two or three weeks a mucous membrane infection, are the cardinal symptoms of subacromial bursitis. In the earlier period of the affection the pain is, in most instances, intense, even the mere weight of the unsupported arm at times causing intolerable suffering. At times the painful area is circumscribed, but occasionally there will be noted wide diffusion and radiation of the pain, even as far down as the wrist. Any attempt at abduction or rotation, as in placing the hand behind the neck or on the small of the back, increases the pain.

The limited disability, due in the early stages to the protective muscular spasm and the painful friction between the upper and lower walls of the bursal sac, possesses a characteristic feature, suggestive in itself of the diagnosis. This feature exhibits itself in the constant ability of the arm to be abducted, passively and at times actively, to the extent of twelve or fifteen degrees before muscular spasm locks the shoulder joint, thus compelling the performance of further abduction by the rotation of the scapula on the thorax. Only the slightest external and internal rotation, or none at all is possible. Later on, especially in untreated or badly treated cases, the limited disability is due to adhesions between the bursal walls or to an irregular and thickened condition of the lining sac wall; and then the patient finds abduction beyond a slight extent and rotation almost impossible, though devoid of acute pain.

A conspicuous feature of subacromial bursitis is shoulder tenderness, involving in most instances the entire shoulder and usually exhibiting an area of maximum intensity over the extreme upper and outer point of the shoulder just external to the acromion. The tenderness is often so pronounced that the patient cannot stand the slightest jarring, and often finds difficulty in lying on either side. It has been stated by Dawbarn that this soreness is present on pressure external to the acromion when the arm is at the side, but disappears on abduction owing to the rolling of the sac underneath the process. The writer has never been able to elicit this sign to his satisfaction, however, for on attempting to abduct the arm to the degree requisite to cause the sac's disappearance underneath the acromion, the muscular spasm invariably locked the shoulder joint, thereby causing the scapula to rotate with the arm and end the test.

Other signs occasionally noted are palpable friction rub and enlargement of the bursa causing increased prominence of the shoulder.

There are no diagnostic difficulties offered by the affection to the physician who bears such a lesion in mind and possesses a working familiarity with the practical anatomy of the shoulder region.

The prognosis of subacromial bursitis is nearly always very good, the patient as well as the physician having much to do with the ultimate result. Indeed it has been shown that willingness on the part of the patient to use the shoulder after the

subsidence of the acuter manifestations, influences to a remarkable degree the results obtained. The writer can testify to the truth of this, for among his patients, who were largely of the ignorant stevedore class and therefore distrustful of and heedless of any line of treatment which entailed too long a "lay off," the return to work at the end of three or four weeks after the onset of the affection was not followed by any evil consequences.

As to the treatment of subacromial bursitis, that usually recommended in standard surgical works—retention of the shoulder in abduction, mild counterirritation, cautious massage, and later gentle but positive passive and active motion—is good. Neither obliteration of the bursal sac by the injection of irritants nor its excision should be practised any more willingly, save as a last resort, than the same procedures on a joint cavity, for the functions of the bursa are definite and important.

The writer, dissatisfied with the somewhat lengthy period of disability resulting from the foregoing plan of treatment, and harassed by his patients for an earlier return to work, resolved to try the effect of a method somewhat similar to that recommended by an eminent authority in joint inflammations. Briefly among other things, this authority recommends the removal by aspiration of the inflammatory secretion and the injection into the joint cavity of some agent to neutralize further inflammatory secretion and to stimulate leucocytosis in that joint. The writer, following out this line of thought in his bursal cases, resolved upon the employment of five per cent. iodoform in glycerin; and since then has not found one practical reason to alter or abandon the treatment. The method is extremely simple and withal most efficient. After securing a clean surface and nicking the skin with a scalpel under local anesthesia, an aspirating needle is introduced into the sac, with the arm at the side, a syringe is fitted to the needle, and as much as possible, if any, of the bursal fluid is aspirated. Through the same needle two to four c. c. of the iodoform-glycerin emulsion is introduced, the needle wound is sealed with collodion and gauze, and the forearm is slung across the front of the chest with support of the elbow, the hand being kept as near as possible to the opposite shoulder. Relief of the intense pain is almost immediate. At the end of twelve days the patient is given gentle massage of the shoulder region, and gradual passive and active motions are practised, returning the arm to its sling at the end of each exercise. Usually in three days more the sling is permanently removed and the patient encouraged to move the shoulder freely, and the eighteenth day usually sees the patient ready for work or actually at work. In every case the method has worked satisfactorily, and there have been no undesirable sequels so far as can be ascertained from a class of people who have no fixed abode.

Taken all in all, the plan of treatment so far has seemed ideal in that it shortens the period of acute pain and enables the patient to enjoy unembarrassed function of the bursa at a comparatively early date.

617 TWENTY-SEVENTH STREET.

IMMUNITY IN TUBERCULOSIS.*

With Special Reference to Racial and Clinical Manifestations.

By EDWARD R. BALDWIN, M. D.,
Adirondack Cottage Sanitarium.

Human beings show no actual immunity to tuberculosis in the sense that certain individuals possess the natural capacity completely to resist infection by the tubercle bacillus. On the contrary, it is a well established fact that certain individuals, if not man in general, show a primary nonresistance to infection by this organism. But in a narrower sense of immunity—that of relative nonsusceptibility to infection—the human race, in certain of its divisions at least, does manifest a certain degree of resistance. This is almost without doubt an acquired characteristic of the individual and not a racial feature.

In the realm of the lower animals it has been suggested that certain races do show evidences of a natural immunity. Such, for example, was thought to be the case in the horse and mule toward infection with the bovine bacillus, and in the pig and sheep toward the human type of organism. But closer study has shown that even in these decidedly resistant races there are not a few individuals which can be infected naturally, and there are many susceptible to artificial infection. From this it is obvious that even these races cannot truly be said to manifest a racial immunity, but only a racial resistance. Lower in the scale we do encounter certain animals which apparently show true racial immunity, such as a certain type of caterpillar which cannot be infected at all. In this instance the explanation is relatively simple, for it has been shown that this animal's tissues have the power of digesting waxy substances and are thereby enabled powerfully to attack and destroy the tubercle bacillus, which is largely waxy in its structure. This immunity is enzymatic in nature, and it is probable that the resistance of the horse and pig and other animals also depends largely upon tissue or serum enzymes which are capable of attacking the invading organisms.

There being no true natural immunity among mammals, and a decided natural susceptibility in man, it becomes of the greatest importance to study the possibility of acquired and inherited immunity. The lower animals have provided the best material for these studies, and work along these lines has not been wanting. It has been possible to show that certain substances associated with the appearance of relative immunity in animals may be transmitted by the mother to her offspring, and the typical anaphylactic response to tuberculin may be obtained in such uninfected offspring. These observations do not prove, however, that the young under these conditions are actively immune to tuberculous infection. Quite the reverse is true. Not only do they not show any immunity, but there is strong evidence that such young animals are actually more susceptible than those springing from normal parents. A

possible explanation of this apparent contradiction, between the finding of immune substances in the blood of the young of immune animals and their greater susceptibility to infection, is to be found in the fact that the infected mother simultaneously transmits to her young a large quota of tuberculous toxic substances. These latter are probably sufficient to overshadow the antitoxic protective substances also transmitted. Conclusive experiments with regard to the possible transmission of immunity from parent to young must be undertaken with the employment of normal females and males with acquired immunity in order to avoid the influence of the toxic substances transmitted from the infected mother. At present, therefore, we are unable to say definitely whether an effective active immunity can be transmitted from parent to young in animals.

This same problem as it bears on the human race has also been studied, mainly by statistical methods, but so far has failed to show any evidence of transmitted active immunity. As in the lower animals the contrary seems to be true, and where the mother is the infected parent the toxic substances which are transmitted decidedly outweigh any possible immune factors, and the young are more susceptible than the children of perfectly normal parents. Not only have we this evidence of a transmitted hypersusceptibility in general, but a study of many families in which tuberculosis is present in both parents and children, strongly points to an organ susceptibility being inherited. Thus there was shown to be a very striking preponderance of instances in which the corresponding portion of the corresponding lung was involved in both children and parent. The existence of this transmitted *locus minoris resistentia* is well confirmed by animal experiments.

The absence of natural immunity and the knowledge that inheritance tends to the transmission of increased susceptibility combine to raise the question of the possible acquisition of some degree of immunity in the individual during life into the position of greatest importance. It is established that certain races and certain groups of individuals who have long been free from the opportunity of repeated exposure to infection, are peculiarly susceptible to infection when they do become exposed. The opposite fact is equally well established, that those races or groups which have long lived under conditions favoring almost continual exposure to infection, have acquired a certain degree of immunity. Such, for example, is true of the Jewish race. This relative immunity is both active and individual, although apparently racial. It is explained on the fact that the prevailing opportunity for infection gives rise to a very large proportion of mild infections which are successfully overcome by the individual in spite of his natural and inherited susceptibility. Recovery from these mild infections, which are often repeated in early life, leads to the development in the individual of an effective relative immunity of the acquired type. Medical care, which permits the recovery of a certain proportion of infected individuals, increases the proportion of protected adults. To substantiate this statement, we have the fact that resistance to infection increases with each year of age from the second year of life to puberty. In addition, there is the well recognized

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, January 10, 1915.

tendency toward the more frequent occurrence of the mild and chronic forms of tuberculosis among the adults of exposed communities than among those of less exposed groups.

This acquired immunity from mild infections in early life, however, is by no means completely protective. It is merely relative and can be overcome by many factors, among which may be mentioned the occurrence of massive infection, infection by a particularly virulent strain of organism, physical or constitutional conditions which lead to the breaking down of all defensive processes, and the complete healing of the lesions which gave rise to the continual liberation of materials provoking the development of immune substances.

The individuals with acquired immunity manifest an excessive response to the injection of tuberculin—or present the phenomenon of allergy according to von Pirquet. This allergic state is probably of enzymatic origin and constitutes an important protective mechanism. On the other hand, it may also be directly concerned in the subsequent secondary infection of the individual with a form of tuberculosis which is more or less superficial, but which may progress rapidly to a fatal termination. Not only may there be in this state of allergy a second exogenous infection, but there may even arise an autogenous reinfection from the liberation of dormant bacilli.

Depending upon the effectiveness of the secondarily acquired active immunity, we may divide cases of tuberculosis clinically into four distinct classes: 1. Those in which there is infection with recovery without spread of the disease. 2. Those with acute spread of the disease. 3. Those with a slowly, chronically spreading infection. 4. And those with alternating periods of spreading infection and periods of arrest.

Since the naturally acquired relative immunity resulting from mild early infections is so potent in reducing both the likelihood of subsequent infection and the severity of such later infections as do arise, it was but natural that efforts should have been made to bring about an artificial active immunity. In this use of tubercle bacilli to provoke an active immunity, it has been necessary to confine ourselves to dead organisms or various extracts of the bacillary bodies. While it has been possible thus to produce a certain degree of relative immunity in both animals and man, all efforts have failed to produce an immunity which is comparable to that afforded by a mild infection by living organisms. Almost every conceivable modification of these bacillary extracts and vaccines has been tried, but the efforts have not led to any improvement over the original tuberculins of Koch. The failure of killed bacilli to produce so active an immunity as do the living organisms may find an explanation in the fact, that in the case of the living bacilli there is a long continued reciprocal and antagonistic series of reactions between the enzymes of the bacilli and those of the cells of the host.

We may now summarize some of the more important of the observations which we have already discussed and draw a few conclusions which seem warranted by our present knowledge. We have seen that there is no natural immunity to tuber-

culosis in man or other mammals; that there is no true immunity of races; that inheritance tends rather to an increased susceptibility than to an increased resistance; that long continued nonexposure of a race to infection increases the susceptibility of that race, while abundant exposure for many generations leads to a marked increase in the frequency of acquired relative immunity; that the mild infections of human beings in early life constitute the most powerful means of relative protection in adult life. From this latter fact, moreover, we may conclude that in the future there should be a continued decrease of the severer cases of tuberculosis in man, accompanied, probably, by an increase in the frequency of the cases of mild and minor infections.

Therapeutic Notes.

A Formula of Value in the Treatment of Gastric Hyperacidity.—Walter Wolff, in his recently issued *Taschenbuch der Magen- und Darmkrankheiten*, highly recommends the following combination for use in cases of hyperchlorhydria, with the frequently associated tendency to constipation:

R Extracti belladonnæ foliorum, . . . gr. iii (0.2 gram);
Bismuthi subcarbonatis, ʒi (7.5 grams);
Magnesiæ oxidi, ʒi (7.5 grams);
Sodii citratis, ʒss (15 grams).
M. et ft. pulver.

Sig.: Take as much as will cover the point of a knife three times a day between meals.

Sodium Bromide in Gastric Therapeutics.—G. Leven (*Quinzaine thérapeutique*, April 25, 1914), lays stress on the benefit of sodium bromide in affections of the stomach. Pain, secretory and motor disturbances, are readily controlled by this drug, the action of which is easily understood if the underlying cause of the dyspepsia is considered to be irritation of the solar plexus. The drug, used in doses of fifteen grains (one gram) twice daily with meals, acts with greater constancy than alkalies, opiates, belladonna, etc., whether serious organic disease (ulcer, cancer, syphilis, etc.) is present or not. Spasm of the cardiac orifice or pylorus is relieved. With sodium bromide and bismuth subcarbonate, which is possessed of a few special indications, nearly all gastric disorders can be appropriately treated.

Treatment of General Paralysis.—Wagner von Jauregg, in *Therapeutische Monatshefte* for January, 1914, recommends the simultaneous administration of mercury and of tuberculin in general paralysis. That such a combination of agencies should prove of value in this affection is accounted for by the well known fact that acute febrile diseases sometimes lead to recovery from psychoses, and the beneficial agent in this event is not the infectious virus itself, but the toxic substances thrown off by it. In paresis the author obtained remissions a year or more in duration upon using tuberculin in conjunction with mercury or mercury and iodides. The patients were enabled to resume their occupations. That the remissions were not of the spontaneous variety was indicated by the fact that they began directly after tuberculin administration was instituted.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal
and The Medical News.*A Weekly Review of Medicine.*

EDITORS

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Address all communications to

A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,
66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transpor-
tation through the mail as second class matter.

Cable Address: Medjour, New York.

NEW YORK, SATURDAY, JANUARY 23, 1915.

HARMFUL PUBLICITY CONCERNING
NARCOTICS.

The arrest of a number of men charged with the illegal sale of narcotic drugs in New York was reported in detail in the daily press. In one newspaper the words heroine and cocaine figured in large type in the headlines, beside being mentioned several times in the body of the matter. In another account the word morphine appeared twice, heroine three times, and cocaine five times within the space of half a column. Full details were printed of the methods followed by the dealers in distributing the drug and by the users in taking it. Such accounts appeared in practically all the daily papers and thus reached the notice of the entire reading population. It was eminently proper that the arrest of these dealers and the sentences imposed should have been made public, and the prisoners held up to contumely as a warning; but no legitimate object can be accomplished by the repeated mention of the narcotic agents, of the methods by which they are marketed and those by which they are used. The publication of such details merely advertises to the morbid and to the weak minded what drugs to use and how to obtain and use them.

A popular journal for women recently contained a warning against the use of hypnotics which,

while timely and well meant, will, we are sure, be the means of starting one or more readers on the downward path by the use of heroine, which is mentioned by name. Even where the dreadful suffering entailed by a drug habit is described, as is done by Amélie Rives in *Shadows of Flames*, the good is doubtful. It is probable that De Quincey's essay on opium has been the means of inducing many inquisitive and idle people to take up the use of this drug, even in the face of the graphic pictures drawn by him of the pain and distress entailed by its habitual use. The newspaper is not the sole offender. The dramatist, even though he draws as repulsive a picture of the effect of the drugs as is done in the play, *Experience*, is at the same time familiarizing the audience with a vice of which the vast majority would otherwise never learn. Even the cinematograph, despite the work of the Board of National Censors, sometimes presents pictures open to criticism. That part of the *Exploits of Elaine* which shows a depraved character administering ethyl chloride followed by scopolamine—the names being clearly set forth on the screen—teaches a dangerous lesson to the miscellaneous audiences which crowd the moving picture shows.

While both lay press and dramatists may be actuated by the highest motives, we feel that they are committing a grave wrong in parading before a public made up so largely of children and half grown youths, such details as the names, sources, and uses of habit forming drugs.

RESPIRATORY STIMULANTS.

Advances in physiology and pharmacology have made possible a more accurate definition of the term, respiratory stimulants, and established more correct standards by which drugs supposed to belong to this class should be judged. Very often experimenters have been content to record changes in the rate or volume, or both, of respiration, and draw conclusions as to whether a drug is or is not a respiratory stimulant. It has long been recognized, however, that there may be very great changes in the rate and even in the volume without corresponding changes in the composition of the alveolar air; it is the latter which determines the amount of carbon dioxide given off by the blood and the amount of oxygen absorbed, and this is the real criterion of effective respiration. Thus Reach and Röder (*Biochem. Zeitsch.*, 22, 471, 1909) found that when a given volume of air a minute was inhaled, in one case in 100 respirations, in another in twenty-five respirations, the alveolar air in the latter case contained a higher percentage of oxygen and a lower percentage of carbon dioxide (that is, the respira-

tion was more effective) than in the former. If the increased rate in the former case had been caused by the action of a drug, many would have been inclined to say that the respiration had been stimulated and the respiratory centre was in some respects in a condition of increased activity; but this increased activity served no useful purpose so far as the fundamental processes of respiration are concerned.

Edsall has for some time emphasized that it is the alveolar, and not the total respiration which is of prime importance, and that the chief function of the respiratory centre is to maintain a ventilation of the lung alveoli sufficient to keep the carbon dioxide at a definite level; what this level will be depends on the excitability of the centre. With this principle in view, Edsall and Means (*Arch. Int. Med.*, 14, p. 897, 1914) have determined in a series of observations upon man the effects of a number of respiratory stimulants upon the alveolar ventilation and upon the percentage of carbon dioxide in the alveolar air, as well as upon the total ventilation and the metabolism. The determination of the metabolism is important; for it is evident that if a drug increases the formation of carbon dioxide, this will of itself increase the respiration and this might be mistaken for a direct stimulation of the respiratory centre. This problem played an important part in a discussion, a few years ago, as to the action of alcohol upon the respiratory centre: an increase in the total respiration was reported. Was this due to a direct action of the alcohol upon the respiratory centre or to an indirect action through increased metabolism including the oxidation, with the increased carbon dioxide formation, of the alcohol itself?

Edsall and Means found in experiments carried out with the universal respiration apparatus of Benedict, 1, that strychnine (one fifteenth grain hypodermically) caused no distinct change in the alveolar carbon dioxide and that therefore it had not stimulated the respiratory centre; 2, caffeine caused a moderate increase in metabolism, a fall in the carbon dioxide tension, and a rise in the alveolar ventilation, which indicates a stimulation of the respiratory centre; 3, the results with camphor were not concordant and no conclusions as to its action were drawn; 4, atropine caused a marked increase in metabolism, a marked drop in the calculated values for alveolar carbon dioxide, and a rise in alveolar ventilation. The latter changes indicate marked stimulation of the respiratory centre, but the authors have obtained evidence that atropine causes changes in the size of the dead space (action on bronchoconstrictors or bronchodilators), which

may necessitate a compensatory change in the ventilation.

As the authors state, observations so far have been made upon normal persons, and it is highly probable that the drugs may act differently in abnormal cases; but it is highly desirable that the action of drugs upon the normal organism should be studied first. As such, this is an important contribution, not only for the results obtained, but for the methods and more exact criteria which it brings forward.

WHY NOT PRESCRIPTIONS IN ENGLISH?

Why do we attempt to write our prescriptions in Latin? We Latinize our drug directions because our professional ancestors did so (their Latin was far better), and they did so because the physicians of the middle ages used Latin, and the medieval doctors did so because they were obliged to know Latin thoroughly, because practically all medical and other lore of repute was buried in Latin and Greek literature, just then being brought to light after the anarchy that had intervened since the decline of the classical epoch. There was, at the time, no other language of learning.

Latin has long since ceased to be the official language of medicine or of any other science. Not one physician in ten thousand has a ready use of it and apothecaries are not more learned in the matter. Even those who have "had" Latin in high school and college seem to find it little easier to master the sciences (so far as our teaching experience shows) than those who have never struggled bravely with the nouns with an accusative in *im*, and the irregular verbs. As Heine said, "the Romans would never have found time to conquer the world if they had been obliged to learn Latin." The language of the ancient Romans is, for actual use, as dead as a doornail. It survives only as it is embodied in our modern everyday tongue. Latin is not the language of medicine, nor is it the language of pharmacy. So far as we of the United States are concerned, the language of pharmacy and medicine is English.

Aside from medieval custom, born of the renaissance, the only reason we have heard offered for the continued use of Latin for prescription writing is that it impresses the patient and keeps him in ignorance of the contents of the prescription. Neither of these arguments should be offered by a physician of the twentieth century. The names of most materials of the pharmacopoeia (with the exception of the invaluable aqua and a few others) look as formidable in plain English as in Latin, or as Latinized. So far as the use of Latin in other parts of the prescription is concerned, if the patient is much of

a scholar he will find the language far from that used either by Julius Cæsar or by the doctors of the middle ages and is not likely to be impressed with the doctor's linguistic accomplishments.

If a medicinal substance has any effect except upon the imagination, it will have that effect as much when written in English as in perfect Latin. The treatment of disease by prescriptions working on the imagination only, has had much to do with the hatching of the extensive brood of mental healers of all descriptions and of those who, under various names, attempt to give relief by the more or less violent laying on of hands. Even for diseases begotten of, or at least heightened by the fancy, there is much more that the physician can do than merely hand the sufferer a few Latinized words written on a slip of paper. This is not the sort of thing modern medicine stands for. We are not a set of esoteric humbugs.

The arguments for the use of Latin in prescription writing are not good, and more positively against such use is the fact of the time and trouble and money wasted in teaching or half teaching the use of Latin in prescription writing, the fact that Latinized prescriptions are seldom well written, and that fewer mistakes would be made if the English alone were employed. Some physicians are already writing their prescriptions in English, and we believe it will not be very long until the use of Latin for this purpose disappears.

DISEASE UNSUSPECTED BY THE SUFFERER.

In the interesting communication in this issue of the JOURNAL by Dr. Charles B. Slade, of the city department of health, giving the results of a physical examination of the employees of that body, a most striking statement is that forty-four per cent. of them were suffering from some pathological condition of which they were quite unaware, but which would, if untreated, have resulted in shortening life by a number of years. The employees of the department of health are, with due respect, strictly average people taken as a whole, of the age of thirty-three years; a time of life where physical efficiency is not quite at its maximum, but where it should be high, while the intellectual powers should be at their best. Their habits, we judge, are somewhat better than those of the general citizen, which is to be expected, for the nature of the work is such as to confer, consciously or unconsciously, a certain feeling of responsibility.

Although the 3,000 members of the department are a small number from which to generalize, perhaps we may safely assume that some

forty per cent. of the inhabitants of the country are also suffering from some serious pathological condition of which they are unaware. The value, the necessity of regular physical examination of the entire population seems therefore to be obvious. A certain responsible organization does this work for a small annual fee; but it should be universal, compulsory, and without cost. Some day our lawmakers will awake to the necessity, and either local boards of health or the Public Health Service will be obliged to extend their activities accordingly, despite the outcry to be expected from all the cults of mental healing, louder, we may be sure, than any that has ever greeted compulsory vaccination. The private practitioner can forestall socialistic legislation of the kind only by educating his patients to undergo regular physical examinations, and by urging upon large employers of labor, department stores, etc., the value of such a procedure. Taken in time, most diseased conditions could probably be remedied before serious impairment of the wage earner's abilities.

RECOVERY FROM ACUTE TETANUS.

F. J. Farrell and G. G. Mecredy report to the *Lancet* for January 2d, a recovery from tetanus worthy of record, as they say, on account of the short incubation period, acute onset, and the delay before treatment was begun. A man, aged twenty-eight years, on October 10, 1914, sustained a small abrasion on the left hip. Two days afterward he complained of a stiffness of the left masseter muscle, but did not consult a medical man until October 16th. At this time he was suffering from noticeable stiffness of both jaws, and was not able to open his mouth widely; a diagnosis of tetanus was not made, however, until the following day. Three thousand units of antitetanic serum were given subcutaneously, and he was removed to the local hospital. The wound was swabbed with liquor iodi fortior. On admission the temperature was 97.4° F. and the pulse 130. The head was retracted and the tendon reflexes were greatly exaggerated. Treatment during the following four days consisted in subcutaneous and intramuscular injections of antitetanic serum, 15,000 units in all. Continuous saline solution was given per rectum. Large doses of chloral and potassium bromide were administered by the mouth every three hours. The convulsions were controlled by chloroform inhalations. On October 22d the patient's condition had become worse; he was slightly delirious and had marked opisthotonos. By lumbar puncture ten drams of cerebrospinal fluid were removed and 4,500 units of antitetanic serum were injected into the spinal canal; at the same time 6,000 units were given intravenously and 1,500 subcutaneously. Eight hours later the temperature had risen to 103.4° F., and the patient became wildly delirious. The serum treatment was continued subcutaneously, and with

the exception of the delirium, which lasted for ten days, the patient improved rapidly and made an uninterrupted recovery.

ABBOTT'S METHOD IN SCOLIOSIS.

Dr. William T. Coughlin, in the *Interstate Medical Journal* for January, 1915, observes: "Much has been heard of late of Abbott's method of treating scoliosis. I have seen my teacher of orthopedics, Dr. A. J. Steele, of St. Louis, many times use practically the same method, more than twelve years ago, and the profession should be grateful to Doctor Abbott for his work. Briefly it consists in pulling and counterpulling by means of wide bandages and pads laterally on the column until if possible the deformity is overcorrected, and then in applying a plaster jacket to produce pressure, counterpressure, and fixation of the spine in its corrected position. No anesthetic need be used; one applies the traction up to the point of toleration and fixes in that position, and some weeks or months later repeats the process as need be. The results are excellent, but do not imagine that they can be obtained in a fortnight. The patient must wear the jacket for some time, and after its removal must be kept closely under observation, for should the scoliosis show the slightest tendency to recur the jacket must be reapplied. Exercises and massage to strengthen the muscles of the opposite side of the body succeed the removal of the jacket."

Abbott's method, as our readers are aware, was first adequately described in the *NEW YORK MEDICAL JOURNAL* for April 27, 1912.

News Items.

The Harvey Society Lectures.—The next lecture in the course will be given January 30th, by Professor Hans Zinsser, of Columbia University, on the More Recent Developments in the Study of Anaphylactic Phenomena.

A French Journal Resumes Publication.—Our friends will be glad to learn that *Paris médical*, suspended since August 15th last, has resumed publication. With the issue for January 2, 1915, it begins a fortnightly appearance to continue until the end of the war, when it promises once more to become a weekly. The new issue is devoted entirely to communications and news concerning the war; abstracts will shortly appear in our pith of current literature.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, January 25th, Section in General Medicine of the College of Physicians, North Branch of the County Medical Society; Tuesday, January 26th, Medicolegal Society, Society of Normal and Pathological Physiology, West Philadelphia Medical Association; Wednesday, January 27th, County Medical Society; Thursday, January 28th, Pathological Society and the Germantown Branch of the County Medical Society.

Medical Club of Philadelphia.—The proposal to spend \$1,000,000 on improvements at Blockley was unanimously approved by this club at its annual meeting held on Friday, January 15th. The following officers were elected: President, Dr. McCluney Radcliffe; first vice-president, Dr. Alexander MacAlister; second vice-president, Dr. William Martin; secretary, Dr. William S. Wray; treasurer, Dr. Lewis H. Adler, Jr.; governor, Dr. George A. Knowles; additional directors, Dr. F. Hurst Maier, Dr. Harvey E. Schock, Dr. Benjamin F. Devitt, Dr. Paul J. Partain, and Dr. Swithin Chandler. Samuel D. Risley presided at the meeting.

New York Academy of Medicine.—The council of the academy for 1915 is composed of the following members: Dr. Walter B. James, president; Dr. L. Emmet Holt, Dr. S. S. Goldwater, and Dr. Edward D. Fisher, vice-presidents; Dr. Charles F. Adams, recording secretary; Dr. D. Bryson Delavan, corresponding secretary; Dr. Reginald H. Sayre, treasurer; Dr. A. Alexander Smith, Dr. Charles L. Dana, Dr. John H. Huddleston, Dr. W. Gilman Thompson, and Dr. Wisner R. Townend, trustees; Dr. Floyd M. Crandall, chairman of the Committee on Admissions; Dr. Thomas L. Stedman, chairman of the Committee on Library; Dr. Robert H. Halsey, assistant secretary; Dr. A. B. Judson, statistical secretary; Dr. Charles Mallory Williams, executive librarian.

University of Oregon.—The following changes in the personnel of the faculty of the Medical Department of the University of Oregon have been announced: Dr. J. M. Connolly has resigned as professor of physiological chemistry and Dr. H. D. Haskins, of Western Reserve University, Cleveland, has been elected his successor.

Dr. B. L. Arms has resigned as professor of bacteriology and accepted a position in the University of Texas; Dr. W. H. Norton, of Johns Hopkins Medical School, has been appointed his successor.

A tract of land valued at \$125,000 has been presented to the University of Oregon by the Oregon-Washington Railroad and Navigation Company, for use as a campus, with the privilege of erecting hospitals upon the grounds.

Society of American Bacteriologists.—At the annual meeting of this association held in Philadelphia, December 29, 30, and 31, 1914, the following officers were elected: President, Dr. D. H. Bergey, of the University of Pennsylvania, Philadelphia; vice-president, Dr. John Weinzirl, of Seattle, Wash.; secretary-treasurer, Dr. A. Parker Hitchens, of Glenside, Pa.; council, Dr. K. F. Kellerman, Dr. W. A. Stocking, Dr. R. E. Buchanan, and Dr. H. J. Conn; delegate to the council of the American Association for the Advancement of Science, Dr. M. J. Rosenau, of Harvard University. The next annual meeting of the society will be held in Urbana, Ill., on December 28, 29, and 30, 1915, and there will be a special meeting in the summer in San Francisco, the date of which has not been fixed.

American Association of Immunologists.—The next annual meeting of this association will be held in Washington, D. C., on Monday, May 10th, under the presidency of Dr. Gerald B. Webb, of Colorado Springs. This association was organized on June 19, 1913, at Minneapolis, and has for its avowed objects the uniting of physicians of the United States and Canada who are engaged in the scientific study of immunity and bacterial therapy; the study of problems of immunology and the promotion of scientific research in this department of medicine, and to spread a correct knowledge of vaccine therapy and immunology among general practitioners. Dr. George W. Ross, of Toronto, is vice-president of the association, Dr. Willard J. Stone, of Toledo, is treasurer, and Dr. M. J. Synnott, of Montclair, N. J., is secretary.

Personal.—Dr. Cary Eggleston, of New York, has been appointed assistant visiting physician to the Second Medical Division of the City Hospital, on Blackwell's Island.

Dr. Charles W. Burr has been appointed consulting neurologist to the Philadelphia Hospital for Contagious Diseases.

Dr. Charles F. Stokes, formerly surgeon general of the United States navy, has been appointed director of the New York City Inebriate Farm at Warwick, Orange County, N. Y.

Dr. Malcolm S. Woodbury has been appointed superintendent of the Clifton Springs Sanatorium, N. Y., to fill the vacancy caused by the death of Dr. James G. Mumford, which occurred last October.

Dr. S. Lewis Ziegler, director of public health and charities of Philadelphia, has accepted the invitation of the president of the Philadelphia County Medical Society to become a member of the society's committee on Hospital Efficiency Conference.

Dr. Herman M. Biggs, of New York, has been elected president of the board of directors of the Tuberculosis Preventorium at Farmingdale, N. J.; Dr. Alfred Hess has been elected first vice-president of the institution.

Dr. Margaret Sullivan has been appointed a member of the Jersey City Board of Education.

Gifts and Bequests to Hospitals.—A bequest of \$50,000 to Harvard Medical School is contained in the will of William Baker, of Waltham, Mass. The money is to be used to establish a chair of gynecology in the school.

The Hospital Saturday and Sunday Association, of New York, has received from the paint and varnish trade contributions amounting to \$1,480.

By the terms of the will of Henry Miller, who died in New York on January 8, 1915, an estate of at least \$300,000 will be divided equally among the Presbyterian Hospital, St. Luke's Hospital, Roosevelt Hospital, and the German Hospital and Dispensary.

Mortality for Week Ending January 16, 1915.—The Department of Health of the City of New York has given out the following figures concerning the mortality during the week ending January 16th: The increase in the mortality from acute bronchitis, lobar pneumonia, and bronchopneumonia to which attention was called in last week's *Bulletin*, continued during the past week, the number of deaths from these causes totalling 311 against 246 during the corresponding week in 1914. The increased mortality from these causes was more than offset by the decreased mortality from certain other causes, especially measles, scarlet fever, pulmonary tuberculosis, Bright's disease, and nephritis and violence, so that the death rate from all causes combined was 14.49 in 1,000 of the population, against 14.86 for the corresponding week last year.

Congress for the Study of Anesthesia.—A clinical congress for the study of local, spinal, and scopolamine-morphine anesthesia will be held in Chicago next Tuesday, Wednesday, and Thursday under the auspices of the Chicago Medical Society. Clinics will be held during the week at the leading hospitals. Spinal anesthesia will be discussed at the first day of the congress, among those who will present papers on the subject being Dr. W. Wayne Babcock, of Philadelphia; Dr. Hermann J. Boldt, of New York; Dr. Kurt E. Schlössing, of Freiburg, Germany, and Professor DeBayle, of the University of Nicaragua. Dr. Arthur Dean Bevan, Dr. John B. Murphy, Dr. C. B. Corbus, and Dr. Leslie Frankenthal will lead the discussion. On Wednesday, the second day of the meeting, the subject for discussion will be local and scopolamine-morphine anesthesia in obstetrics. Papers will be read by Dr. J. Clarence Webster, of Chicago; Dr. John O. Polak, of Brooklyn; Dr. Kurt E. Schlössing, of Freiburg, and Miss Elizabeth Ross Shaw. Dr. Joseph B. DeLee, Dr. Henry F. Lewis, Dr. Charles S. Bacon, and Dr. Charles Paddock will take part in the discussion. Local and scopolamine-morphine anesthesia in surgery and gynecology is the topic selected for consideration on the third and last day of the congress. Dr. M. G. Seelig, of St. Louis; Dr. A. E. Hertzler, of Kansas City; Dr. Emil Reis and Dr. M. L. Harris, of Chicago, will read papers, Dr. Clifford U. Collins, of Peoria, and Dr. Paul F. Mori, of Chicago, will open the discussion.

Surgeon General Gorgas to Speak in Philadelphia and New York.—Dr. William C. Gorgas, surgeon general of the United States Army, will deliver an address on the Sanitary and Hygienic Questions Involved in Constructing the Panama Canal at a meeting of the Philadelphia County Medical Society to be held on Wednesday evening, January 27th. The address will be illustrated by numerous lantern slides. The meeting will be held in the Manufacturers' Club, and at the close there will be a reception in the grill room, followed by a supper. Those who wish to participate should communicate at once with Dr. Henry D. Jump, 4634 Chester Avenue.

General Gorgas will be the guest of honor at a dinner to be given at the Fifth Avenue Building Restaurant, Twenty-third Street and Fifth Avenue, New York, on Saturday evening, January 30th, at 6:30 o'clock. The following program has been issued by the committee: Presiding—Dr. S. S. Goldwater, Commissioner of Health of the City of New York; Surgeon General William C. Gorgas, United States Army, Economic Causes of Disease; Hon. Frederic C. Howe, Commissioner of Immigration, The State Constitution—For the People or the Interests; Mr. Gilbert E. Roe, The Constitution and Home Rule; Mrs. Carrie Chapman Catt, Future Voters' Interest in the Constitution; Mr. Frederic C. Leubuscher, President Society to Lower Rents and Reduce Taxes on Homes, The Constitution and Unemployment. Reservations can be made at \$1.50 a plate. Checks should be made payable to the order of Benjamin C. Marsh, 320 Broadway, New York.

The American Relief Fund for Belgian Physicians.—In his stirring appeal for aid for the Belgian physicians, Professor Charles Jacobs, of Brussels, states that 1,000 doctors are poverty stricken, and that 2,000 to 3,500 doctors are suffering cruelly through this war. That 2,000 physicians need to be supplied the necessities of life would seem a low estimate. It seems probable that the physicians' families will average four members. That means that 8,000 members of physicians' families are dependent upon outside contributions; \$3.40 will supply sufficient food to sustain life for four for one month. Belgian physicians and their families, therefore, absolutely need at least \$8.80 worth of food every month. For the first month, contributions of American physicians aggregated \$1,414. Will the medical profession of America accept its opportunity and meet its share of this responsibility by prompt and repeated contributions? Every cent of every dollar contributed will be available for the purchase of supplies as the carrying charges are provided for by the American Commission for Relief of Belgium.

The first one thousand dollars contributed has been expended by the executive committee for food and supplies, and the packages properly labeled have been started for their destination.

The following is a full list of the names of all contributors to the fund up to and including January 16, 1915: Union Trust Company, Pittsburgh, Pa., banking facilities; Sterrett & Acheson, Attorneys, Pittsburgh, Pa., professional service; Dr. Frank Overton, Patchogue, N. Y., \$25; Dr. Franklin H. Martin, Chicago, Ill., \$100; Dr. F. F. Simpson, Pittsburgh, Pa., \$100; Dr. S. Peskind, Cleveland, Ohio, \$25; Dr. and Mrs. George C. Smith, Mansfield, Ohio, \$5; Dr. Samuel Ayers, Pittsburgh, Pa., \$20; Dr. Edwin Walker, Evansville, Ind., \$25; Dr. Boleslaw Lapowski, New York, N. Y., \$10; Dr. Thomas E. Satterthwaite, New York, N. Y., \$20; Dr. Thomas L. Stedman, New York, N. Y., \$25; Dr. Richard E. Eustis, Boston, Mass., \$10; Dr. Mark W. Richardson, Boston, Mass., \$10; Dr. William Allen Pusey, Chicago, Ill., \$25; Dr. M. C. Shelton, Joplin, Mo., \$5; Dr. Henry F. Walker, New York, N. Y., \$25; Dr. Boyd Cornick, San Angelo, Tex., \$2.50; Dr. David W. Cheever, Boston, Mass., \$25; Dr. Virgil P. Gibney, New York, N. Y., \$25; Dr. John B. Murphy, Chicago, Ill., \$100; Esther F. Boland, Boston, Mass., \$5; Dr. Chauncey W. Norton, Saranac Lake, N. Y., \$25; In Memory of H. H. C., Boston, Mass., \$10; Dr. S. J. Meltzer, New York, N. Y., \$15; Dr. David Bovard, New York, N. Y., \$25; Evelyn G. Manter, Winthrop, Me., \$10; Dr. L. Maude Warren, Baldwinville, Mass., \$5; Dr. Ambrose Talbot, Kansas City, Mo., \$10; Dr. J. G. R. Mainwaring, Flint, Mich., \$25; Dr. James C. Thompson, Pittsburgh, Pa., \$25; Dr. Lowell C. Frost, Hollywood, Cal., \$10.15; Emma T. Frost, \$10.15; Dr. F. W. Stetson, Boston, Mass., \$10; Dr. Guy L. Hunner, Baltimore, Md., \$25; Dr. George E. Lyon, Moweaqua, Ill., \$5; Dr. Edward E. Krumbhaar, Philadelphia, Pa., \$10; Academy of Medicine, Cincinnati, Ohio, \$100; Dr. David S. Moore, Birmingham, Ala., \$10; Dr. C. M. Banks, Springfield, Tenn., \$1; Marion County Medical Society, Marion, Ohio, \$25; Dr. Henry M. Swift, Portland, Me., \$10; Dr. E. H. Mackay, Clinton, Mass., \$5; Dr. R. O. Raymond, Flagstaff, Ariz., \$10; Dr. J. H. Bertrand, DeForest, Wis., \$5; Dr. E. S. Reedy, Seattle, Wash., \$5; Dr. and Mrs. H. C. Wetherill, Denver, Colo., \$50; Dr. Burnley Lankford, Norfolk, Va., \$3; Dr. Charles W. Allen, Hoboken, Pa., \$5; Dr. William Van V. Hayes, New York, N. Y., \$25; Drs. Parker & Parker, Peoria, Ill., \$5; Dr. Heman B. Chase, Yhannis, Mass., \$10; Dr. John B. Wheeler, Burlington, Vt., \$25; Dr. Stuart McGuire, Richmond, Va., \$50; Dr. John G. Clark, Philadelphia, Pa., \$50; Dr. F. R. Underwood, Seattle, Wash., \$5; Dr. Abraham Jacobi, New York, N. Y., \$100; W. A. M. Ossining, N. Y., \$2; Dr. Theodore C. Janeway, Baltimore, Md., \$15; Dr. Isaac M. Heller, New York, N. Y., \$5; Dr. S. H. Miller, Joplin, Mo., \$5; Dr. B. F. Saylor, Redding, Cal., \$10; Dr. J. Wolf, Pittsburgh, Pa., \$10; Jasper County Medical Society, Joplin, Mo., \$10; Dr. Sidney A. Chalfant, Pittsburgh, Pa., \$10.20; Dr. Frederick Abbe, Boston, Mass., \$10; Dr. J. Riddle Goffe, New York, N. Y., \$25; Dr. Henry F. Graham, Brooklyn, N. Y., \$5. Total, \$1,414.

Expenditures, 450 boxes of food purchased from Austin, Nichols & Co., at \$2.20 per box, \$990. Balance, \$424.

By order of the Executive Committee.

HOWARD C. TAYLOR, Secretary.
F. F. SIMPSON, Treasurer.

BERLINER KLINISCHE WOCHENSCHRIFT

October 10, 1914.

Modern Methods of Treating Lupus, by Arthur Alexander.—Lupus is so prevalent and so dependent upon defective nutrition and unhygienic surroundings that it should be considered a disease for municipal or government consideration. In addition to existing institutions for its treatment many more are needed if the best results are to be obtained. As to modern methods of treatment, the most certain and the quickest, the method which gives the best results is the operation of Lang and Jungmann. This requires surgical skill and is not applicable to all cases. Tuberculin has been a subject of discussion; certain cases, it seems, are benefited, and its cautious use can do no harm. Copper lecithin gives promise of being almost specific in lupus; it is administered for a long period in the form of inunctions, or of pills internally, and the local lesion is simultaneously treated with a ten per cent. ointment of the compound. The results are a local reaction which progresses to sloughing and destruction of the lesion. It is believed that the copper promptly leads to destruction of the tubercle bacillus; it is too soon to estimate finally the value of this method. Along similar lines of chemotherapy is the trial which has recently been made of gold and potassium cyanide, which rests on Koch's old observation that gold cyanide compounds have a remarkably destructive action on tubercle bacilli. The injection of this substance leads to focal reaction in the lesion similar to that produced by tuberculin, and there is some evidence that it has marked curative powers. Besides these chemical methods of attack there are the physical ones of radiation and diathermia, both of which have given good results in the hands of many clinicians. Diathermia, however, has the disadvantage of being but little applicable to facial lupus, which is by far the commonest form of the disease.

November 2, 1914.

Diagnostic Significance of Hemoglobin-Rich Megalocytes, by L. Duenner.—There is great difficulty at times in differentiating severe secondary and true pernicious anemia. All of the features in the blood picture of the true pernicious anemia may be encountered in secondary anemia with three exceptions—high color index, deeper pigmentation of the erythrocytes by their greater hemoglobin content, and presence of megalocytes containing a large proportion of hemoglobin. The first two findings are generally regarded as valuable by hematologists; the third is little known. Duenner thinks the presence of these cells of great diagnostic importance in pernicious anemia; that they rarely occur in even the severest forms of secondary anemia. As if to prove his rule he cites a case which constitutes an exception. A woman suffering from severe acute secondary anemia after profuse hemorrhage of duodenal ulcer showed a typical picture of pernicious anemia with the exception that the red cells were pale and the color index was low. In her blood he found a small number of the deeply pigmented megalocytes which he regards as almost characteristic of pernicious anemia. As the patient recovered from her anemia these cells decreased in number

and disappeared when recovery was complete. A second case is mentioned by the author. In this the cause was hemorrhage from a duodenal ulcer. It is suggested that there was probably a long continued small loss of blood from the ulcer in these cases and that the chronic tax on the bone marrow for the reformation of blood led to its hyperplasia and liberation of these megalocytes. This conforms to the two known facts; first, small chronic hemorrhage is frequent in duodenal ulcer, secondly, the presence of these megalocytes is indicative of bone marrow hyperplasia. It is urged that occasional occurrence of pigmented megalocytes in secondary anemia does not impair their diagnostic value in pernicious anemia; for the latter condition must never be diagnosed on any single factor. In both of the reported cases the two other diagnostic features of pernicious anemia were wanting—high color index and deep pigmentation of the erythrocytes.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

October 22, 1914.

Foligan, by Heinrich Epstein.—Domestic medicine has long employed infusion of orange leaves as sedatives for administration to children. From this empirical use of these leaves, Epstein had prepared a purified extract of orange leaves called foligan. Chemical analysis of this extract did not reveal any substance upon which any sedative action might depend, but its clinical use showed it to be mildly sedative in a considerable proportion of cases. Doses ranging from 0.1 gram to one gram had decided sedative action and doses from one to 1.5 gram often acted as mild hypnotics. In no case in which there was pain did the preparation have any effect. It may be considered a pure and mild sedative and hypnotic in simple cases of nervousness or insomnia. There did not seem to be any tendency to tolerance nor any toxic action.

WIENER KLINISCHE WOCHENSCHRIFT.

December 10, 1914.

Staining of Hemolymphatic Tissue with Specific Blood Stains, by Carlo Gamma.—It has been found difficult to stain microscopical sections of hemolymphatic tissue so that the elements of the blood would show the characteristics of the cells similarly to what is seen in the blood smear. The difficulty was encountered in the fixation and dehydration. The following method has overcome this difficulty to a great degree: The fresh tissue is fixed in ten per cent. formalin solution, and imbedded in paraffin after being allowed to remain in the dehydrating alcohol only as short a time as necessary. Then the tissue is sectioned. The first staining fluid consists of a mixture of azur II-eosin in the proportion of one drop of the stain to one c. c. of distilled water. The tissue remains in this solution for from twelve to forty-eight hours, is washed in distilled water and placed in the second staining fluid, which consists of one drop of Giemsa solution to one c. c. of distilled water. The tissue remains in this stain for seven hours, the stain being changed once during this time; differentiation is made with very weak acetic acid (three drops of glacial acetic acid to 250 c. c. water) for from thirty seconds to two or three minutes, until the section is red; it is thoroughly washed in running water

until all of the acetic acid has been removed. The slide is dried, the section being allowed to remain moist, and imbedded in neutral glycerin by applying paraffin to the cover slip. The form of the elements is preserved, also the basophilic staining quality of the protoplasm in its different intensities. The granules are plainly seen in their characteristic colors and the preparation is clear because of the glycerin used.

Asiatic Cholera, by Odo Buiwid and Leopold Arzt.—Cholera is more easily combated today than other of the infectious diseases such as typhoid and tuberculosis. The infection is due to the cholera vibrio, a comma bacillus which is very motile and which is found in the stools of cholera patients, at times almost in pure culture. It does not form spores; is killed by drying and also by temperatures below 10° C. and above 60° C. The best method of disinfection is by adding milk of lime to the stool. In the present war the mortality of a series of sixty-five cases in which the bacteriological diagnosis had been made was twenty-six per cent. In another series of about forty cases in which cholera serum was injected, the mortality was only fifteen per cent. The treatment consisted of subcutaneous or intravenous injections of salt solutions, at times hypertonic. Bolus alba was also given to the patients. In the bacteriological examinations it was observed that the routine examination of the feces with peptone water entailed a great amount of work and the results obtained did not justify its use. The culture media of Dieudonné and Esch were useful. Of great importance is the employment of strongly alkaline agar plates. The growth on these plates is almost characteristic. The culture medium of Endo is of special advantage in mixed infections such as dysentery and cholera. The agglutination test is of great value. The most common mixed infection is cholera and dysentery; cholera and typhoid has also been observed. According to some authorities vaccination against cholera is accompanied by a negative phase which is present during the first few days following vaccination and during this time the chance of infection is increased.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

December 8, 1914.

New Anticholera and Antigonococcic Vaccines, by A. Netter.—This is a discussion of vaccines prepared by C. Nicolle through addition of sodium fluoride to cultures of cholera organisms and gonococci. The comma bacilli succumb in a seven in 1,000 solution of the fluoride in twenty-four hours at body temperature. They are then washed and made into a suspension containing one billion organisms to the c. c. In using the vaccine, 0.25 c. c.—diluted with saline solution—is injected as an initial dose, and 0.75 c. c. two weeks later. Little or no local or general reaction is caused by the vaccine, and injection of it into guineapigs was found actually to lead to the production of the required specific antibodies. The antigonococcic vaccine is prepared like the preceding, but contains in addition to the gonococcus an organism occurring with it in the specific discharges, termed by Nicolle the synococcus, and which has been found by him to possess considerable therapeutic power, as a vaccine, in exoure-

thral complications of gonorrhea, viz., rheumatism, prostatitis, and orchitis. The vaccine, as prepared, contains twenty-five million gonococci and 225 million synococci to 0.5 c. c. Trial of the vaccine in 437 cases, including numerous instances of orchitis, ophthalmia, rheumatism, vulvovaginitis, etc., yielded very gratifying therapeutic results.

Anthrax Septicemia the Result of a Bullet Wound, by Conteaud.—A unique case of this nature is reported, the patient being a young soldier who received a bullet wound in the right side. A marked contrast was soon noted between the apparently insignificant wounds of entrance and exit and the coexisting intense general prostration, the wounds even on the fifth day showing but little tendency to supuration. The diagnosis was made by blood culture, injection into a guineapig, and subsequent rapidly fatal course of the disorder. How anthrax infection of the wound had taken place could in no way be ascertained.

Functional Incapacities of Nervous Origin among the Wounded, by P. Sollier.—Cases of functional incapacity occurring independently of any joint, muscular, or nervous lesion in patients whose wounds had already healed are grouped as follows: 1. Cases in which there is undue apprehension of the pain induced by mobilization of wounded limbs that have been kept splinted for a more or less prolonged period; these cases occur on the first day on which passive movements are executed, and usually yield readily to psychical treatment combined with mechanotherapeutic procedures. 2. Cases in which the incapacity is due to a lack in the representation of motor acts in the patient's mind, with more or less complete loss of muscle sense and astereognosis the result of prolonged immobility of the limb; the prognosis is good under early application of exercises calculated to excite muscle sense, and under motor reeducation. 3. Cases of incapacity due to a fixed obsession of incurability on the patient's part, with physical and mental depression, abulia, opposition to all forms of treatment, etc.; energetic and prompt treatment, physical and, especially, psychical, is indicated, but the prognosis remains rather unfavorable. 4. Cases of hysterical nature, often with contraction in the splinted limbs; the prognosis is good provided that appropriate mechanotherapeutic measures and special motor reeducation are promptly taken up.

PRESSE MÉDICALE.

December 3, 1914.

Use of Morphine as Analgesic in Obstetrics, by Gabriel Bertrand.—A report of experiences with the injection of large doses of morphine in labor cases is given. It was found possible, by judicious use of the drug, to obtain a deep and safe analgesia, with complete relief from the subjective discomforts of labor. Two c. c. of a two per cent. solution of morphine hydrochloride may be given as an initial dose, with 0.75 c. c. additional if prolongation of the period of analgesia, which averages seven hours after the initial dose, is required. No impairment in uterine contractility was noted, labor being, in fact, apparently shortened. Frequently the child was born more or less apneic, but this condition was readily overcome by the measures customary in

such cases, and is even pointed out as a possible advantage in cases where premature respiration is apprehended.

Prophylaxis of Tetanus, by Chaput.—Early use of antitetanic serum, together with thorough disinfection of wounds within, at the most, twenty-four to forty-eight hours, is advised. The wounded should be protected against cold, which greatly favors development of tetanus. Iodoform is recommended for dressing abrasions of the hands and feet. Crushed limbs should be amputated as soon as possible, and bullet tracks should be freely explored, cleaned out, scraped, disinfected with iodine, and filled with iodoform or iodoform gauze. In deep infected wounds of the hands and feet all tissues not presenting a normal appearance should be systematically excised, together with as much bone as may be required to obviate joint infection. Large infected joints should be freely opened and drained with iodoform gauze. In cases where iodoform is not well borne, zinc peroxide or bismuth gauze should be used. Where thorough disinfection of a wound is not practicable for lack of time, wicks of iodoform gauze should at least be introduced.

RIFORMA MEDICA.

December 10, 1914.

Peritoneal and Intestinal Pain, by G. G. Pari.—Blumberg's sign is explained. Direct pressure on an organ causes pain in the organ proper, while release of the pressure gives peritoneal pain. This phenomenon was first observed and reported in 1886 by Gallard in connection with oophoritis; it can be made out, not only in peritoneal involvement, but also in enteritis. Some authorities, as Lennander, assert that all pain in abdominal organs is peritoneal. The writer maintains that pain that is more acute on decompression, does not justify the diagnosis of peritonitis as Blumberg asserts; in fact he has proved to his own satisfaction that it is found as often in enteritis as in peritonitis.

Tonsillar Extract in Diabetes mellitus, by C. B. Farmachidis and A. Vattuone.—The writers refer to a former article on the glycolytic action of tonsillar extract *in vitro* and when injected into animals. These experiments encouraged them to try it in cases of diabetes in man. They had tried liver extract, thyroid, suprarenal, intestinal juice, and duodenal mucosa, without great success, and finally had an opportunity of using tonsillar extract in three cases of grave diabetes. They used it intravenously in daily doses of two to twenty c. c., and found a temporary primary increase in the glycosuria, followed by a rapid decrease. There was also a very marked improvement in the other symptoms, with increase in weight and muscular power. Acetonuria, in one of their cases, disappeared after two months of treatment.

Aseptic Meningitis of Saturnine Origin, by L. Preti.—In recent years cases have been reported by Vidal and others, of typical meningitis where the cerebrospinal fluid, although apparently purulent, showed itself to be completely sterile on bacteriological and biological examination. In these cases, the symptoms, while quite alarming, are usually of short duration, and disappear rapidly with spontaneous cure of the morbid process. The author reports such a case occurring in a male aged thirty-seven

years who was under treatment for his ninth attack of lead colic. He manifested a typical meningitis while in the hospital; a lumbar puncture produced twenty-five c. c. of purulent fluid with a specific gravity of 1.010, containing 0.5 per cent. albumin and a trace of sugar. A sediment was thrown down without centrifugation which was composed mainly of polynuclear leucocytes. Repeated examination showed no microorganisms, cultures remained sterile after incubation; intraperitoneal injections in animals produced no lesions. Immediately after the lumbar puncture, the patient's symptoms cleared up, and a second puncture, a week later, showed a normal cerebrospinal fluid.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

December 21, 1914.

Salvarsan, by V. Gimeno.—In this article Noguchi's experiments are cited which show that when salvarsan is given intravenously, it cannot be discovered in the cerebrospinal fluid, or system. As a result, a method was sought to obtain direct action on the spinal cord, and Spencer devised the following technic: Salvarsan is injected intravenously; subsequently, a portion of blood is withdrawn. From this the serum is obtained, and is injected intraspinal after lumbar puncture, replacing the quantity of fluid withdrawn at the time of the puncture. This method was used in seven cases of locomotor ataxia, and in five of sclerosis with variable results. Balance has used direct injection of remedial substances into the lateral ventricle, because apparently there is not much entrance of the spinal fluid proper into the brain. The author thinks that a great field is thus opened up for the treatment of cerebrospinal syphilis and other diseases of the nervous system.

BRITISH MEDICAL JOURNAL

January 2, 1915.

Acute Hemorrhagic Pancreatitis, by Sir Frederick Eve.—Two hypotheses have been offered to explain the causation of this disease. The first is that the lesions are produced by the autodigestive action of the pancreatic enzymes on the pancreatic tissue after some mechanical factor has led to their extrusion into the gland substance. The second, that the lesions are due mainly to the occurrence of infection of the gland. Both of these hypotheses seem to be in part true, and the actual cause is, in all probability, a combination of the two. It has been shown that the normal pancreatic secretion is inactive, only becoming active through a hormone. Recently it has been demonstrated that certain living pathogenic organisms, especially of the typhoid and coli group, are capable of activating the proteolytic pancreatic enzyme. The natural history of the pathogenesis and pathology of acute pancreatitis shows that both of these factors are usually present. The disease is frequently associated with cholelithiasis, cholangitis or cystitis, and somewhat less often follows prolonged duodenal catarrh or duodenal ulcer. Obstruction of the pancreatic duct, secondary extrusion of the pancreatic secretion into the gland tissue and its activation by infecting organisms may thus occur. It is probable that in addition to the activation of the proteolytic enzyme the infecting organisms directly lower the resistance of the tissues so that this enzyme acts the more favor-

ably in their digestion. It has been commonly thought that the chronic forms of pancreatitis, which are not infrequently encountered, were of a different origin from the acute forms. Such is not strictly the case; in the chronic as well as acute, the most important factor is infection of the biliary and pancreatic ducts with coliform organisms. The old idea that the cause of acute pancreatitis was the entrance into the pancreas of bile has been shown to be fallacious, for the injection of sterile bile is incapable of leading to the disease in experimental animals, and the disease is not rarely encountered in man under conditions which preclude the entrance of bile into the pancreatic ducts.

Gray Hair and Disease Limited to the Nasolabial Area, by G. Lenthal Cheatle.—Following his previous observations on the occurrence of grayness of the hair in certain nerve areas only, where also certain diseases may be found sharply limited, Cheatle now describes a number of cases of grayness or whiteness of the facial hair sharply limited to the nasolabial region described by Head. Thus one or both ends of the moustache were observed to have become gray or white while the central portion retained its color. Similarly, in the nasolabial area, and confined to it, loss of hair, rodent ulcer, syphilitic rash, and phagedena have been observed. A case was also seen in which there was flushing of the entire face except in this small area and one immediately below it.

LANCET.

January 2, 1913.

X Ray in War Time, by Edward W. H. Shenton.—The author says that in more than sixteen years of personal experience he has seen more errors from the attempt by means of x ray photographs to localize foreign bodies in the tissues than from any other cause. The ray may be employed, however, in a very simple and satisfactory manner with the aid of the fluoroscopic screen to locate accurately the position of a foreign body. The patient lies on a table and the tube is placed beneath the part to be examined so that the rays will pass vertically through it. A fluoroscopic screen is then applied directly to the skin of the part under examination. By means of circular diaphragms of lead a small beam of light is passed through the part and is moved about until the foreign body is made to appear in its centre on the screen. The location of the shadow is then marked on the skin. The object lies vertically under this mark. In this position a metal pencil, about which a small piece of lead wire has been wound, is held horizontally with its point exactly over the mark previously made on the skin.

PRACTITIONER.

December, 1912.

Injection Treatment for Hemorrhoids, by Sir James F. Goodhart.—Although, as he says, "it will surely be the thought of many a surgeon, 'This man had much better mind his own business,'" the author strongly recommends injection of hemorrhoids because he has seen a good deal of partial and poor success in common operations, while the results of injection have seemed to him uniformly good. Supposing that some cases do fail, what

harm has been done if, by other measures one cannot be sure of perfect success? He questions whether there is any risk of embolism after injection, and whether the risk as claimed is based on a single case and then handed on as authoritative. Injection produces a local thrombosis, but so does the natural course of the disease in many cases, resulting in a spontaneous cure. The method is practically painless, and need not keep a man from his work, while the objections to operation are that it lays up the patient for some time, it causes shock, it sometimes causes serious local trouble later, and in other cases leaves a state of discomfort that is more or less permanent.

A Legally Established Case of Traumatic Carcinoma of the Breast, by W. Sampson Handley.—The following case is of interest as the first in which the doctrine of traumatic carcinoma has been accepted in the English high courts. A woman consulted him on March 26, 1912, and stated that on November 3, 1911, she fell over a beam where some building operations were in progress, falling apparently on the left elbow and breast. The arm had to be kept in a sling for three weeks and subsequently its movements were stiff. About January 1, 1912, she first noticed a discharge from the left nipple, and shortly afterward a small lump in her left breast. Her general health had been impaired since the accident. Examination revealed a large and advanced malignant tumor occupying the upper half of the left breast, extensively adherent to the overlying skin; the tumor seemed to be rapidly growing. It was removed in April, 1912, and found to be a duct carcinoma, although its clinical characteristics, save for the discharge, rather pointed to sarcoma. It was evidently of multifocal origin, for it mapped out accurately the anatomical limits of the group of lobes forming the upper hemisphere of the breast. The case was tried on December 16, 1912, the jury found for the plaintiff and awarded £200 damages. Recurrence took place toward the end of January, 1913, and the patient was dead within a month.

BOSTON MEDICAL AND SURGICAL JOURNAL.

January 7, 1913.

Treatment of Tuberculous Cervical Adenitis, by Henry D. Chadwick.—Surgical intervention is necessary only to remove such glands as have become caseous or fibroid. Extensive dissections are unnecessary; the small, recently diseased glands that are left will disappear under the influence of tuberculin treatment.—John B. Hawes 2d. is of about the same opinion, but thinks that the use of tuberculin will probably be confined to specialists and will never become common among general practitioners. He has met with some discouraging results in his own use of tuberculin; he feels on the whole that it has done a great deal of good and in no case has done harm. He gives as reasons for failure or unsatisfactory results: 1. The length of treatment and consequent effect on the patients, who frequently become discouraged and drift away before any results can be expected. 2. Poor general condition of the patient that prevents any response to tuberculin. 3. Active pulmonary tuberculosis, in which he is unwilling to give tuberculin except under abso-

lute supervision. 4. Certain isolated, walled off, discrete masses of glands in adults, or young adults. Surgical measures are best for these. He also lays stress on the hygiene of the mouth and throat; the physician should remember that he is not treating simply a few enlarged glands in the neck, but the disease tuberculosis.

Tuberculosis from a Dentist's Standpoint, by George H. Wright.—There is an anatomical relation between the teeth and the cervical glands. There is also a mechanical factor—the pumping into adjacent tissues of debris through loose teeth and mastication, an open door for the entrance to the glands of tubercle bacilli.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

January 9, 1915.

Treatment of Advanced Tympanic Deafness, by P. D. Kerrison.—This paper was abstracted in our issue for July 4th, page 54.

Atropine Treatment of Dysmenorrhea, by E. Novak.—Many methods, medicinal and operative, in the past have been advocated in the treatment of spasmodic dysmenorrhea; none has proved eminently successful. Atropine diminishes the irritability of the autonomic nerve endings in the uterus. The author's experience has been most encouraging; he follows the plan of Novak, of Vienna; and beginning atropine just before menstruation gives three times a day a pill containing 0.5 mg. The results appear to be as satisfactory as when a solution of atropine is injected into the cervical canal, as practised by Drenkhahn, while the slight danger of infection from this procedure is avoided. In his cases he has frequently administered somewhat larger doses than those advised by Novak, and, in general, he has found that patients who respond most favorably are those in whom the atropine has been pushed to the point of tolerance.

Resection of the Knee Joint for Tuberculosis, by M. S. Henderson.—This paper was abstracted in our issue for July 4th, page 55.

Fractures of the Inferior Maxilla. A Report of 1,065 Cases, by H. S. Dunning.—About ninety-eight per cent. of all fractures of the body of this bone are compound when there are teeth in the jaw; it is the bone which most commonly suffers a compound fracture; this, on account of its compound character, becomes infected oftener than any other. The patient suffers greatly by reason of injury to the inferior dental nerve, from cough, and also from inability to eat, drink, swallow. A line of fracture is most often at the region of the bicusps on the left side, and fractures depend a great deal on the occlusion of the upper and lower teeth. Fractures of the condyles, which are rare, are often followed by bony ankylosis, while fractures of the coronoid process are extremely rare, and occur only when the zygomatic arch and the side of the face are severely crushed. The most frequent cause of fracture of the lower jaw is a blow with the fist. Infection is the chief danger. In treatment the hygiene of the mouth and the patient's physical condition must be carefully considered. Teeth and soft parts should be cleansed, and every two hours the teeth and gums should be wiped with cotton swabs soaked in equal parts of hydrogen dioxide and water. A röntgeno-

graph having been taken, the next step should be extraction of any broken down decayed roots and any loose teeth near the seat of fracture. If there is great edema and swelling of the soft tissues, it is sometimes well, before securing coaptation and fixation of the bony parts, to apply hot or cold compresses; meanwhile keeping the mouth clean and the jaws held together with a Barton bandage. The character of the splinting must depend largely on the situation of the fracture, deformity, and presence or absence of sound teeth. The author is opposed to open operation and surgical wiring of fractures in this region, as advised by Cotton. In children all fractures are best treated with small modified interdental splints, as the teeth are not strong enough to wire, and it is difficult and unsatisfactory to cement a cap splint on the teeth.

Report of a Case of Acute Dilatation of the Stomach, by A. Mayoral, Jr.—This case occurred in a patient with double pyosalpinx who was being operated upon. The accident is of special interest, first, because it cannot be explained by the most common theory of the cause of such dilatation, namely, constriction of the lower end of the duodenum between the root of the mesentery and the vertebral column by the dragging down of the small intestine; secondly, because it occurred in the midst of the operation, and not as a postoperative complication; and, thirdly, because the patient completely recovered, suffering only slight discomfort in the epigastrium for twenty-four hours. As soon as the dilatation was noted, a stomach tube was passed and considerable gas, but no liquid, evacuated. Anesthesia was stopped, and the operation rapidly completed.

MEDICAL RECORD.

January 6, 1915.

Intestinal Stasis, by F. B. Starkey.—There is often found a history of constipation and indigestion with abdominal cramps; or constipation may have alternated with diarrhea. A history of faulty occupational position, favoring adhesions, acute or chronic appendicitis, peritonitis, is common. The stools are badly formed, either flattened and ribbon-like, characteristic of a spastic condition, or in hard masses covered with mucus. When diarrhea occurs, the feces are usually flocculent, foul, expelled with great force, and gas. The patient is frequently pale and sallow, with flabby face, and there is general relaxation of the muscles, especially those of the abdomen. The abdominal picture is very characteristic; pot belly, with flattened epigastrium and a distinct demarcation between abdomen and thorax. By percussion a distended, ptosed stomach and colon may commonly be mapped out, and the condition is confirmed by x ray. In addition, signs of adhesions, kinks, dilatations, and malpositions of the organs may often be found. Blood pressure is often increased; the urine is usually scanty, pale, and of low specific gravity. The ethereal sulphates are increased; indican is increased in proportion to autointoxication. There may be albumin and casts. Treatment is hygienic and dietetic, medicinal, and finally, if necessary, surgical. Fresh air; systematic bathing, massage, and appropriate exercise, which may include calisthenics and special move-

ments, are valuable aids. The diet is regulated for the purpose of overcoming constipation, if present, of increasing fat, and of decreasing putrefaction by lessening nitrogenous content. A liberal diet of easily digested foods rich in cellulose, with plenty of water, so that there is a large moist residue in the bowel, is desirable; care being taken not to overload the stomach. The patient's teeth should be looked after, and careful mastication insisted on. In the medicinal treatment, the author has used disintoxication treatment with considerable success. All food is withdrawn for a period of from three to five days, during which the patient is encouraged to drink water freely and large doses of a saline are given. When this is followed by the administration of lactic acid bacilli, a new intestinal flora can often be discovered, saprophytes having been starved and washed out in enormous quantities by abstinence and purgation. Russian paraffin oil, olive oil, or cold expressed linseed oil is a valuable adjunct. For intestinal spasticity, belladonna is indicated; for atony, nux vomica and cascara. The ductless glands, which play such an important part in maintaining the tone of the intestinal tract, should be stimulated. (See JOURNAL for January 16th, page 102, for the electrical treatment advocated.)

Pituitary Extract in Obstetric Practice; with Some Critical Observations on Twilight Sleep, by S. W. Bandler.—In pituitary extract we have the greatest aid introduced into the field of obstetrics in the last twenty years, and its use can be highly recommended in the vast majority of cases: cases in which birth per vaginam is possible without corrective procedure. As to twilight sleep, from the experience the author has had with morphine, narcophin, hyoscine, and scopolamine, he has gained the impression that these inhibit and nullify the activity of pituitary extract. If this is a fact, the strongest criticism which can be made lies against this method; for anything which prolongs labor and interferes with a drug as valuable as pituitrin, one which shortens labor to such a marvelous degree, loses most of the advantages which have been claimed for it. Especially from the standpoint of the physician who prefers to spend more than an occasional few minutes at the patient's bedside the advantages of the pituitrin method compared with the narcophin-scopolamine procedure are certainly evident.

The General Use of Distilled Water, by L. L. Von Wedekind.—It is the belief of the author, who is a medical inspector in the United States navy, that such practice will secure the elimination of toxins leading to arterial changes, and also the elimination of water borne disease. Distilled water, hungry for soluble ingredients, has its appetite satisfied in coursing through the body and removes excess, up to its capacity, until excess ceases to exist, and is ever ready to meet an emergency. In the prophylaxis of arteriosclerosis, the all important point is to discover the high blood pressure while it is still functional; so too, in gouty or rheumatic arthritis it is to be understood that this method is not suggested as a treatment for diseased conditions; but it is urged that the distilled water should be used for cooking and drinking.

ARCHIVES OF INTERNAL MEDICINE.

December, 1914.

Postanesthetic Glycosuria as Influenced by Diet, Body Temperature, and Purity of the Ether, by E. L. Ross and P. B. Hawk.—The problem of the causation of postanesthetic glycosuria was studied in experiments on dogs. It was shown that neither reduction of body temperature during ether anesthesia nor artificial reduction to a minimum of the oxygen content of the ether vapor administered causes glycosuria. The response to ether from which aldehydes and other impurities had been removed was no different from that to ether ordinarily used for anesthetic purposes. Inhalation of either kind of ether for two hours in animals subjected to a carbohydrate free diet was, however, in every instance accompanied by glycosuria, whereas when the same animals were fed a mixed diet, no glycosuria was ever noted.

Besredka's Tuberculin and the Occurrence of Tuberculosis among Syphilitics, by J. Bronfenbrenner.—The chief reason why complement fixation has not as yet become possible in the diagnosis of tuberculosis, viz., the lack of a suitable antigen, appears to the author to have been at last removed through Besredka's discovery of a new culture medium for tubercle bacilli, consisting of a suitable mixture of bouillon, egg yolk, and egg white. Bronfenbrenner confirmed Besredka's preliminary findings as to the efficiency of his antigen for early diagnosis of tuberculosis, in man as well as in animals. Rabbits and guinea pigs infected with tuberculosis gave a positive reaction often as early as from seven to ten days after the inoculation, and among a group of six hundred human cases examined, the reaction was found present frequently before there were any definite symptoms of the disease. The technic followed is described in detail. Tuberculosis was found, by means of the complement fixation test, to occur much oftener among syphilitics than among nonsyphilitics.

Clinical Study of Two Hepatic Functional Tests, by W. R. Sisson.—The galactose test was performed in twenty-nine patients. Forty grams of the sugar were given by mouth at 6 a. m. in 200 or 300 c. c. of tea, the usual breakfast given an hour later, and the urine collected for a period of six hours after the ingestion of the galactose at two hour intervals. The urine was then tested for sugar, and the latter estimated with the polariscope. The author accords the galactose test considerable value in the differentiation of catarrhal jaundice from other hepatic conditions showing biliary stasis. It proved rarely positive in cases of cirrhosis of the liver showing no evidence of biliary stasis. A study of the excretion of phenoltetrachlorophthalein in hepatic cases was also made, but no definite conclusion reached.

Artificial Pneumothorax, by G. B. Webb, G. B. Gilbert, T. L. James, and L. C. Havens.—Twenty-four hours after the first application of artificial pneumothorax, spontaneous and complete pneumothorax followed in three of the authors' eighty-three patients. While believing artificial pneumothorax to be of undoubted value in many advanced cases of lung tuberculosis, the authors state that every

known therapeutic method should be thoroughly tried before pneumothorax. Gas analyses and experiments in animals showed that little if any advantage is gained by injection of nitrogen rather than atmospheric air in producing pneumothorax.

SOUTHERN MEDICAL JOURNAL.

December, 1914.

The Importance of Fundamental Methods of Physical Examination in the Practice of Medicine, by W. S. Thayer.—The tendency to place too great reliance upon diagnostic tests furnished by the laboratory and special instruments of precision, and to neglect the practice and consideration of the simpler methods of physical diagnosis, is a widespread danger, and constitutes the gravest fault in the American practitioner today. By taking the short cut to a diagnosis, by accepting the results of the work of others, and neglecting the use of our own eyes and ears and fingers and minds, we may greatly diminish our usefulness in the profession. The establishment of a correct diagnosis, the first stage in the rational practice of medicine, may justly be regarded as the most important part of the physician's art, and the making of a diagnosis requires trained powers of observation, skill in the fundamental arts of physical examination—inspection, percussion, and auscultation—as well as the use of a large variety of instruments of precision for the investigation of individual symptoms. Above all, it requires a mind which, through experience as well as training, is capable of weighing and properly appreciating the different manifestations of disease and the results afforded by various tests of function; so that in the end, from a multitude of what may apparently be contradictory symptoms, the fundamental seat and nature of the malady may become evident. It is, the author believes, very largely the fault of the teaching in medical schools that the simpler arts of physical diagnosis are not more intelligently practised, since in almost all of them instruction in physical diagnosis, in its restricted sense, is given over to young men, men who have had but little practical experience. To be a good physician one must be skilled in the fundamental arts of diagnosis; to be skilled in these one must have practice and experience. It is the duty of the medical schools to see to it that these arts are taught thoroughly by trained and experienced men; and the student should be offered a considerable measure of practical experience in the wards of a hospital before his graduation. It is the duty of the State to demand that this experience shall have been secured. See JOURNAL, December 12, 1914, page 1180.

Conservation of the Children in Our Schools, by J. L. Bowman.—The advantages of recording the physical, mental, and moral condition of school children cannot be overrated. The medical school inspector's record should show the physical status of the child and, if possible, something of its family history. The teacher can easily add its mental and moral progress. The author describes a system now in use in Union Springs, Ala., which he believes would be of the greatest possible value if generally adopted: The family and personal history is secured by having the children write their autobiography for composition work. This is recorded on

a "jacket," inside of which is filed the yearly record of the pupil: one card for each year. Such card shows the physical condition of the child during the year; records the number and causes of absences; the teacher adds to this record the character of the work done by the child and its conduct each month.

LONG ISLAND MEDICAL JOURNAL.

December, 1914.

Foreign Bodies in the Appendix and the Resulting Lesions, by Royale H. Fowler.—The author observed a case in which a pin was found encrusted in fecal concretion imbedded in the appendix. He searched the literature and collected sixty-three cases in which a pin was the offending object. Over a third of these cases occurred in children less than eleven years old. Twenty-four patients were females, but such occupations as seamstress, tailor, nursemaid, etc., did not seem to predispose to this accident. A history of the swallowing of the pin was obtained in only five cases. The pin may form the nucleus of a fecal concretion, in which it may be partially or wholly enclosed; it may be covered with concretion at one end, the other having perforated the wall while the incrustated end forms a ball valve; the pin may be straight or bent; it may be much eroded, in several fragments; or it may lie free in the appendix without either concretion or material erosion. In the vast majority of cases it was found lying parallel to the long axis of the appendix. The lesion which it causes is more often chronic than acute, and may vary from so slight an inflammation that it cannot be recognized macroscopically, to a perforative appendicitis with abscess formation. Other organs may be involved, and a fistula into the bladder may be produced. In about one third of the cases the pin was the direct cause of the perforation. Only in a very few instances had there been suspicions of the presence of a foreign body in the appendix before operation. Taking into consideration a very large number of reported cases of foreign body in the appendix, the common domestic pin is found to comprise over fifty-two per cent. of the total.

Twilight Sleep, by John Osborn Polak.—Total amnesia and analgesia are procurable in at least ninety per cent. of cases and the dangers to the child are much less than usually stated by the opponents of the method. Many children do not breathe for a few moments after birth, but it is very rare to encounter one which is truly asphyxiated so as to need artificial aid for the establishment of respiration. The particular advantages of the method, aside from the relief of suffering lie in the fact that the analgesia permits the cervical dilatation to proceed more rapidly, actually shortening this stage of labor; this also holds true of the relaxation and dilatation of the pelvic soft parts and the perineum: by relieving the mother of the exhaustion of ordinary labor and its attendant suffering, there is less tendency for the development of uterine inertia. This is all particularly true of the nervous woman with her first child. The great danger to the child seems to lie in the administration of too large or too frequent doses of morphine or narcophin, but scopolamine can be repeated as needed.

Proceedings of Societies.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Twenty-seventh Annual Meeting, Held at Asheville, North Carolina, December 15, 16, and 17, 1914.

The President, Dr. JOHN WESLEY LONG, of Greensboro, North Carolina, in the Chair.

(Continued from page 137.)

Surgical Service of the Civil War; Then and Now; The Progress of Fifty Years.—Dr. HENRY O. MARCY, of Boston, said that military surgery had not generally been considered conducive to medical science. The history of every great campaign, however, had furnished lessons of profit. They had entered into the warp and woof of medical literature until the knowledge had become a leaven, gradually lost among the contributions of successive centuries. Tracing the historical thread of wound treatment through Assyrian, Egyptian, Greek, and Roman usages, he called special attention to the work of Ambroise Paré. On the battlefield the young surgeon tied an artery, and out of this experiment grew their modern method of ligating arteries. Two hundred years later, Napoleon taught sanitation in the care of his soldiers. By vigorous vaccination he eliminated smallpox from the French armies, while that dread disease, then and now so little understood, decimated those of their enemies. Napoleon recognized Jenner's service to humanity. Baron Larrey, Napoleon's surgeon general, was the authority of the period in military surgery. Oliver Wendell Holmes learned from him to close a simple wound and leave primary union to Nature. The fame of Larrey and his medical staff made Paris the centre toward which students gravitated for many years. The Crimean campaigns gave the world a system of nursing in part established by the immortal Florence Nightingale which had led to the modern schools of graduate nurses.

In the Civil War, he had been a medical director of the South. He could discuss the duties of the surgeon in camp and on the field, the diseases prevalent in the low coast lands of South Carolina, their prevention and cure, questions of diet and cleanliness, above all, of temperate living, from his actual experience in handling problems that faced the surgeon during those years of struggle and exposure. Smallpox, dysentery and diarrhea, and fevers were many times more fatal than wounds, and lack of care, of proper food and housing, more terrible than death. The siege of Charleston and the cleaning of the city after surrender both fell within his term of service. He was an eye witness of the medical difficulties of those events and learned to sympathize with human suffering. His particular aim now was to compare the experiences and results of the Civil War with those of the present Continental contest. Climate played an important part as a cause of sickness and death. Peace had its victories no less than war, as witness the campaign waged by the present surgeon general, Colonel Gorgas, against the diseases of the tropical regions. His success made this great zone a white man's country.

The medical department of an army should be given more power—in certain matters supreme power. Sanitary measures should be under their control. The duties of the medical corps were more important before than after the battle. In the campaign the first duty was to keep the army in perfect condition, able to respond with the maximum of efficiency and valor. To the soldier, the camp and the campaign should be a school of sanitary training.

Dr. JOSEPH C. BLOODGOOD, of Baltimore, stated that the simplicity of technic and doing things with the least material was necessary in war. They could not have the material near the firing line, nor even in the near hospitals, so, if the civil surgeon attempted to apply to his daily routine simplicity and economy, he might establish equally good methods of technic, with equal protection to the patient, and with great economy to the hospital, and in that way prepare himself for taking care of a large number of wounds at any one time that might occur in a hurricane, a big flood, or war.

Military Surgery; Special Consideration of Gunshot Injuries.—Colonel CHARLES RICHARD, of the Medical Corps of the United States Army, said that in the wars of fifty years ago and up to and including the Spanish-American war, wounds by small arm bullets constituted more than ninety per cent. of all battle wounds; with the relative increase in field artillery in modern armies, the ratio of artillery wounds to wounds from small arms had increased considerably, and in recent wars (Russo-Japanese and Balkan wars) artillery wounds had constituted from fifteen to twenty per cent. of the total. The character of operations influenced the type of battle wounds. Thus in sieges and attacks on fortified places, artillery wounds would furnish a larger proportion of casualties than a general engagement, while in assaults on entrenched positions and in cavalry charges, the ratio of bayonet and sabre wounds would differ from those received in general engagements.

The modern military rifle possessed certain characteristics common to all the various models. The bullet was of small calibre, varying from 0.255 to 0.315 inch (6.5 mm. to 8 mm.), with a weight of from 150 to 220 grains; its head was either ogival or pointed in shape, and it had an initial velocity of from 2,000 to 2,700 feet a second, and a flat trajectory. The pointed type had been adopted by England, Germany, Turkey, and the United States. Machine guns used the rifle ammunition, and wounds inflicted by them were of the same character as those inflicted by the rifle. The character of a wound inflicted by a projectile depended upon its size, shape, composition, the velocity at the time of impact, and the type of the tissue injured. The greater the velocity of the bullet, the greater was its energy, and the amount of energy expended in overcoming the resistance of the tissues determined the amount of damage done.

The elongated jacketed bullet of the present day military rifle, in passing through soft parts in which but little resistance was met with, cut its way sharply, losing but little of its velocity, and consequently expending but little of its energy. In passing through the spongy bones, as those of the face, the carpus

and tarsus, and the epiphysis of the long bones, it usually perforated with but little splintering, while upon the diaphyses of the long bones, the encapsulated organs, like the brain, liver, spleen, and organs containing fluid or semifluid contents, like the bladder, stomach, and intestines, its action was quite different, especially at the short ranges where its velocity was high. At a range of 500 yards and under, it shattered and splintered the diaphyses of the long bones, and upon organs containing fluid or semifluid contents, it would produce explosive effects. Wounds caused by shells and their fragments, being nearly always contusions and lacerations, were not so liable to be followed by profuse hemorrhage. In wounds inflicted by shrapnel, profuse hemorrhage was comparatively rare. In the vast majority of gunshot wounds the hemorrhage was usually slight and ceased spontaneously.

With the introduction of the small calibre jacketed bullet of high velocity, the application of the principles of antiseptic and aseptic surgery, and the great advance in abdominal surgery, it was generally believed that battle wounds of this class would be attended by a reduced mortality, and that the operative treatment would be followed by better results than conservative treatment. Such, unfortunately, had not been the case in military practice. Numerous incidents had been recorded in recent wars in which perforation of the abdominal viscera by the small bore bullet had taken place and in which the patients had recovered without operation. On the other hand, operations in the field had been attended by a very high mortality. There was no question that in a considerable proportion of abdominal penetrations and perforations, laparotomy was indicated, but the conditions in the field for its successful issue were not favorable. The primary treatment in the field in perforations and penetrations should consist in the application of the first aid dressing, rest, and morphine. Transportation for any great distance should be delayed; all food and drink by mouth must be withheld; thirst was relieved with water by rectum; shock combated; and if laparotomy was not to be performed, morphine was administered freely.

As to the treatment of the complications and sequelæ of military injuries, necessarily the treatment at the regimental aid stations, which were placed as close to the firing line as possible, would in most instances be of the simplest character. In the vast majority of cases this would consist of sterilization of the wound and the surrounding skin, and the application of the first aid dressing. Iodine was used to secure sterilization of the skin and wounds. The first aid dressing consisted of pads of antiseptic gauze, sterilized bandages, and pins. Every officer and soldier carried this as a part of his equipment and was instructed how to apply it. No exploration, no probing, no digital examination, no irrigation of the wound were to be contended. The wounded parts were fixed by appropriate bandaging or extemporized splints when necessary; rest to the wounded part was an important factor in the healing of wounds. No operations except such as might be necessary to save life, as the arrest of hemorrhage, should be undertaken any

nearer to the front than the field hospital. Hemorrhage in most cases was slight and ceased spontaneously; if not, it could usually be controlled by tampon and tourniquet until some safe operative procedure could be undertaken at the field hospital. Manipulation of the injured parts was justifiable only so far as it might be necessary to render the wounded man more comfortable and to permit of his safe transport to the rear. If shock was severe, measures to counteract it must be employed. Pain should be relieved. At the dressing station, to which point the ambulance advanced, further treatment was instituted if indicated; dressings were readjusted, cases recorded and stimulants, when required, administered. From the dressing station the wounded who were unable to walk, were conveyed to the field hospital, the last line of assistance, by the ambulances; others made their way back as best they could. The field hospitals were placed well to the rear beyond danger from the enemy's fire. Here shelter and food were provided, and the wounded rested. Wounds were more carefully examined and dressed more elaborately and thoroughly; splints of a better character than the extemporized splints were applied, surgical operations were performed, and the wounded were prepared for safe transportation to the evacuation or base hospital. These latter institutions were more extensively equipped and prepared for surgical work of all kinds.

Thoracotomy in Unresolved Pneumonia.—Dr. RANDOLPH WINSLOW, of Baltimore, reported two cases of pneumonia which cleared up after operation. In cases of acute croupous pneumonia resolution ought to occur about the tenth day, when the temperature dropped and convalescence began. When the temperature remained elevated and irregular after this period, it caused great apprehension. It might mean acute tuberculosis, but usually it indicated empyema. In such conditions it was proper to aspirate the chest and seek to locate pus, but even if one did not find pus, the pleural cavity should be opened and explored and drainage tubes inserted. This was the treatment adopted in his cases after ample time had been given for a spontaneous recovery. Whether the improvement in these two cases was merely a coincidence and not a sequence of the treatment, he did not know, but he did know that they were progressing unfavorably before the operation and speedily became convalescent after it. Whether the improvement was due to the loosening of the adhesions or the drainage of the pleural sac, although there was nothing to drain, he did not know. He knew that improvement and cure followed the injection of gases and air in some cases of tuberculosis. Might it not be that the benefit observed in these cases of unresolved pneumonia was due to the entrance of air into the pleural cavity, causing increased atmospheric pressure in the lung?

Skin Grafts in the Ambulatory Treatment of Ulcers.—Dr. JOHN S. DAVIS, of Baltimore, had analyzed the results obtained in the first fifty cases grafted. He had been able to observe some of these patients for over a year, and there had been no recurrence in a single instance in an area successfully grafted. In one or two cases with marked varicose

veins, small ulcers on other portions of the leg had occurred, but not in the grafted area. From the results obtained in the first fifty cases he felt he had added to his armamentarium a method of treatment which had hitherto been used only on patients resident in the hospital. In other words, the successful use of grafts in the outpatient department would make for hospital economy and would also hasten the return of many patients to full wage earning capacity.

Passive Congestion of the Liver Simulating Abdominal Tumor.—Dr. CHARLES R. ROBINS, of Richmond, reported the case of a woman, forty-two years of age, who suffered with right upper abdominal distress for ten years, during which time she had been getting steadily worse. She had not been able to lie on this side for five months without its beginning to thump. There was marked local pain and tenderness. Six weeks previous to admission to the hospital, she had been taken with a fever during which she had two decided chills, and became jaundiced. The fever and jaundice had gradually cleared up. She had had a similar attack six months previously. Since her last attack her appetite had not been good. She had suffered from nausea and could not take solid food or cold drinks. Her abdomen had been swollen a great deal, but had subsided. On physical examination, no trouble was detected in the lungs; the heart sounds and pulse indicated myocardial degeneration, but no murmur nor valvular insufficiency was detected. Several blood pressure readings varied from 85 to 100 systolic. There was no edema nor ascites. The abdomen was prominent and tense. In the upper abdomen to the right of the median line and coming apparently from the under surface of the liver was a globular tumor about the size of a grape fruit, which could be easily moved about and which moved with respiration. It was quite tender and tense and gave the sensation of fluid in a tight sac. Owing to the large abdomen, physical signs were not distinctly elicited. The tumor could not be reduced in the kidney space. The Wassermann test was negative. Examinations of blood and urine showed no deviation from normal. On account of history of attacks of fever, chill, and jaundice, a probable diagnosis of distended gallbladder was made, and a right rectus exploration done. The tumor was found to be the dark, swollen, and congested right lobe of the liver, which was prolapsed and rotated so that it projected into the abdomen, the edge of the liver being rounded off by the swelling. The liver had a slight nutmeg appearance. A section of the liver was examined microscopically by Dr. A. C. Broders, who reported marked fatty degeneration with some cirrhosis and round cell infiltration. A markedly inflamed appendix was found and removed at the operation.

Cure of Cancer of the Uterus by Curetting for Diagnosis.—Dr. HERMAN J. BOLDT, of New York, reported the case of a woman, forty-seven years of age, who had been advised to have a hysterectomy done because she had cancer. The diagnosis was taken from scrapings said to have been obtained from her. Not being able to find, either subjectively or objectively, the slightest evidence at that time of

cancer of the corpus uteri, he proposed that because the other physician failed to obtain the section upon which the diagnosis of cancer had been made, for his own inspection, another curetting be done for diagnosis. This was done two weeks after the previous curetting. All scrapings (serial sections were made) were found to be of normal endometrium. Some time after this, two slides with the scrapings from which the diagnosis of this case had been based were given to him for inspection. They showed advanced adenocarcinoma. A number of competent pathologists examined these and the sections from the scrapings, and expressed the opinion that it was more likely that an accidental mix-up in the scrapings had occurred than that they came from the same patient. Opposed to this was the statement of the pathologist, that this could not have taken place. This would then be the first and only case in which an advanced adenocarcinoma had been cured by a curetting for diagnosis.

The other case concerned a woman, thirty-six years of age, in whom the examination of scrapings removed by curetting, done during the course of other operations, on November 7th, without suspicion of carcinoma being present, showed distinct early adenocarcinoma. When the uterus was extirpated two weeks later, the most painstaking examination of serial sections of all parts of the uterine mucosa failed to show cancer.

The Bulgarian Bacillus in Cystitis with Alkaline Urine.—Dr. FRANCIS R. HAGNER, of Washington, D. C., stated that the most common organism found in alkaline cystitis was *Proteus vulgaris*. Recently he had a patient who gave a history of chills, fever, recurrent attacks of urinary frequency and tenesmus, extending over a period of three weeks, with cloudy alkaline urine. Cystoscopic examination showed a bright velvety area just behind the right ureteral orifice. The x ray being negative for calculus, the possibility of tuberculosis of the right kidney was considered, but several urinary examinations failed to show the bacilli; guineapigs inoculated continued to gain in weight. This patient's right kidney urine was strongly alkaline and contained much pus and some blood, while the urine from the left was but faintly alkaline, containing but a small amount of pus. Instillations into the bladder improved the patient's condition, but the urine from the right kidney continued alkaline and the pus continued to be present. The author injected the kidney with the Bulgarian bacillus. Two tablets were dissolved in ten c. c. of sterile water and injected into the kidney pelvis through the ureteral catheter. The patient had no trouble for thirty-six hours, when he had quite a sharp chill, temperature going to 103.5° F., but becoming normal in twelve hours. The day after the injection the patient's urine was acid, and although the author made two more Bulgarian injections into the bladder, no more treatment was directed to the kidney. The patient had been away from the hospital two weeks, his urine remaining clear, acid, and free from pus. The Bulgarian bacillus was a very valuable addition to the therapeutics of bladder infection with alkaline urine.

(To be continued.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Operative Surgery of the Nose, Throat, and Ear. For Laryngologists, Rhinologists, Otolologists, and Surgeons. By HANNAU W. LOBE, A.M., M.D., Professor of Laryngology, Rhinology, and Otolology, in St. Louis University, in Collaboration with JOSEPH C. BEEBE, M.D., F.R.C.S., and GEORGE W. CRILE, M.D., F.R.C.S., and A. CROCKETT, M.D., WILLIAM H. HANLEY, M.D., ROBERT LEVY, M.D., HARRIS P. MOSHER, M.D., GEORGE L. RICHARDS, M.D., GEORGE E. STEINMANN, M.D., and GEORGE B. WOOD, M.D. In Two Volumes. Volume 1. Four Hundred and Nine Illustrations. St. Louis: C. V. Mosby Company, 1914. Pp. xxi+300.

This book is the first attempt in medical literature to present in extensive form the operative surgery of the nose, throat, and ear, with no attempt at any reference to pathology, etiology, and symptomatology. The first three chapters deal with the surgical anatomy of the nose, pharynx, larynx, neck, and ear. The illustrations are beautifully prepared and are amply supplemented by marginal notes. Being mostly original drawings, they have an added importance. That portion referring to the accessory sinuses of the nose is further demonstrated by a series of very valuable reconstruction outlines which illustrate very clearly the great variability of the size, extent, and location of the various groupings of accessory nasal cavities and their relations to the nose and cranial cavity.

Chapter four deals with the external operations upon the larynx, pharynx, esophagus, and trachea with profuse illustrations demonstrating the surgical field. Chapter five discusses laryngoscopy, tracheoscopy, bronchoscopy, esophagoscopy, and gastroscopy. The newer methods of technic of the direct examination of the larynx and suspension laryngoscopy of Killian are considered in detail. This work manifests the great advance made by the laryngologist in enlarging his sphere of activity in the surgery of the bronchus and esophagus; it is no longer a question of the removal of foreign bodies for which these methods are employed, but, for the diagnosis of pathological conditions. Neoplasms, ulcerations, and other conditions are now recognizable at a time when some hope of relief is possible.

Chapter six details the plastic surgery of the nose and ear; the reconstruction surgery by Rhinoplasty and Otoplasty. Plastic methods are no longer the work of the "beauty doctors," but are on the highest plane of surgical technic, to be undertaken only by those having a high degree of manipulative dexterity and originality of thought.

A Treatise on Diseases of the Rectum and Anus. Edited by A. B. COOKE, A.M., M.D., Formerly Lecturer on Diseases of the Rectum and Professor of Anatomy in the Medical Department, University of Nashville; formerly Professor of Anatomy and Clinical Proctology, Medical Department, Vanderbilt University. Assisted by WILLIAM M. BEACH, A.M., M.D., Pittsburgh; J. COLES BRICK, M.D., Philadelphia; GEORGE B. EVANS, A.M., M.D., Dayton; ALOIS B. GRAHAM, A.M., M.D., Indianapolis; GRANVILLE S. HANES, M.D., Louisville; LOUIS J. KROUSE, M.D., Cincinnati; COLLIER F. MARTIN, M.D., Philadelphia; FRANK C. YEOMANS, A.B., M.D., New York; A. J. ZOBEL, M.D., San Francisco. With 215 Illustrations in the Text and 21 Full Plate Plates. 7 in Colors. Philadelphia: F. A. Davis Company, 1914. Pp. xiv+619. (Price, \$5.50.)

The author makes an apology in his preface for the presentation of another book on diseases of the rectum to the long suffering profession. This apology would not have been necessary had the writer followed his original intention of writing the whole book himself. The first sixteen chapters of the work, all prepared by him, are excellent and stand out in sharp contrast to the subsequent fourteen contributed by various authors more or less identified with proctology and only moderately fitted for the important work of preparing textbook articles. The original author, by his long experience in teaching the subject, has learned

the art of imparting his knowledge in a systematic and attractive form and has shown excellent judgment in the selection of his illustrations and plates. The chapters teem with practical points gained through special experience and are very valuable, not only to the specialist, but also the physician and general surgeon. The chapters from the pens of the collaborators are in many cases hurriedly written, unsystematic, and painfully lacking in helpful illustrations. The book has thus been partially sacrificed by the author's unwillingness to finish it himself and cannot take the high place among works on this subject which would otherwise have been its right.

Appendicitis. A Plea for Immediate Operation. By EDMUND OWEN, F.R.C.S., D.Sc. (Hon.), Surgeon to the French Hospital; Consulting Surgeon to St. Mary's Hospital, and to the Hospital for Sick Children, Great Ormond Street, London. New York: William Wood & Co., 1914. Pp. xii+214. (Price, \$1.50.)

The author does not lay claim to have written a complete essay on appendicitis. He has desired rather to treat the subject largely from one point of view, viz., early operation. He wishes to see enforced among the profession at large the rule "to look and see, rather than wait and see."

The book seems to prove to the general practitioner the correctness of the generally accepted view among progressive surgeons, that operation should follow without delay upon the diagnosis of appendicitis, in other words, that operation should be the routine treatment of appendicitis. The American surgeon will subscribe to the fundamental principles laid down by the author, particularly as these principles were first established in this country, the birthplace of the operation. There are some details of treatment, preoperative, operative, and postoperative, which are at variance with generally accepted practice in this country. As an instance may be cited the recommendation of Epsom salts in obstructive symptoms before and after operation. In general, however, it may be said that an acceptance throughout the profession of the views expressed in this book regarding the time of operation would mean a great lowering of the mortality of this disease.

A Manual of Physiology With Practical Exercises. By G. N. STEWART, M.A., D.Sc., M.D. (Edin.), D.P.H. (Camb.), Professor of Experimental Medicine in Western Reserve University; Clinical Physiologist to Lakeside Hospital, Cleveland; Formerly Professor of Physiology in the University of Chicago; Professor of Physiology in the Western Reserve University; etc. With Colored Plate and 467 Other Illustrations. Seventh Edition. New York: William Wood & Co., 1914. Pp. xxiv+1132. (Price, \$4.)

From its first appearance this book has been recognized as a standard work, and each succeeding edition has established it more firmly as a favorite and reliable textbook. In the present edition the chief changes are to be found in the chapters dealing with circulation, respiration, digestion, absorption, metabolism, animal heat, and the physiology of muscle and the nervous system. At the same time the whole book has been thoroughly revised, and some of the chapters have been subdivided. The subject matter is well arranged; there are frequent summaries of important topics; and the practical work is printed at the end of the chapters, so that it can be readily found by those who are working in a laboratory, while at the same time it does not interfere with the continuity of the subject for the general reader. It is a thoroughly satisfactory volume by a recognized master of the science of which it treats.

Kirk's Handbook of Physiology. Revised and Rewritten by CHARLES WILSON GREENE, A.M., Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Eighth American Revision. With Five Hundred and Nine Illustrations, Including Many in Colors. New York: William Wood & Co., 1914. Pp. ix+780. (Price, \$3.)

A new edition of Kirk's physiology is before us. Kirk died just half a century ago, and his one work, which was many years ago then edited and revised and by so many different men, it is hard to see why Kirk should be still held responsible for a book which probably does not contain one line or one illustration which appeared during his life time. Beside the honored name of

Kirkes himself, we have seen editions of this work by Paget, Marrant Baker, Halliburton, Harris, Dana, Coleman, Rockwell, Busch, and Greene. It speaks well for the original work of Kirkes that it has been able to survive the many revisions of these many men; all of "Kirkes" in the present volume is probably to be found on the title page and cover. The name may possibly help the sale of the book among the unthinking; but no student who is at all awake wants a physiology or any other scientific textbook by an author who has been dead for fifty years. In the present volume we have looked in vain for the autonomic nervous system, for Haldane's method of estimating the quantity of blood in the body, for protopathic and epiptic sensibility, for the glycogenic function of muscle, for aphasia, and for the physiology of the spleen, of old age, of puberty, and of fatigue.

Interclinical Notes.

Those who are in a position to know, have long been aware of the treasures of original literature locked away among the miscellaneous papers of many a physician apparently quite engrossed in his practice or in his laboratory. The publishers of *Medical Pickwick*, which makes its bow with the January, 1915, issue, have cleverly availed themselves of this condition of affairs and have furnished a handsome and dignified vehicle for the best of this avocational work. Despite the name, the journal is not exclusively a humorous periodical; it begins with a notable foreword by Dr. Fielding H. Garrison, the medical historian, which is followed by a charming addition to Stevensoniana by Stephen Chalmers. Other contributors to the first number, well known to our own readers, are Dr. John B. Huber, Dr. Ira S. Wile, and Dr. Robert T. Morris. There are two war poems by Dr. Henry Clarke Coe. *Medical Pickwick* is published monthly at Saranac Lake, N. Y., at two dollars per annum.

* * *

Fritz Kreisler, the noted violinist, tells in the *New York Evening Post* for January 16th some of his experiences in the war; he was inviolated from the front with a severe wound in the thigh. As an example of what a trained musical ear is capable, Mr. Kreisler states that he could tell by the shriek of a shell whether it had not reached the apex of its trajectory or whether it had passed and was coming down. He could also tell whether it was coming from the guns of his comrades or from those of the enemy, and whether it was a howitzer or an ordinary shell.

* * *

In connection with the theory that the medical profession will be one of the first bodies whose activities will be brought under direct government control, it is interesting to note that it was disease which first brought forth the opinion of a great judge that the Federal Government's power over interstate commerce is so great that it is as if there were no States. As noted in the *Outlook* for January 13th, the National Government can prevent the shipping of diseased cattle from one State to another; the *Outlook* thinks the nation might give as much attention to the protection of children.

* * *

How a sick baby from an Australian tribe, unable to walk, was saved and nursed back to health by sailors, is amusingly told in the *Wide World Magazine* for February by A. J. Daplyn. The Scotch mate and the Chinese cook rigged up what the former called a "sort of suction pump" out of a piece of brass piping and a discarded gin bottle, and through this apparatus the baby imbibed condensed milk, thrived amazingly, and became the pet of the ship.

* * *

"Instead of picturing to the young minds the windmills of Holland, why not," asks John P. Hoyland, president of a prominent American manufacturing association, in *Leslie's* for December 24, 1914, "allow them to become acquainted with the importance of the smokestacks of the American industries, of our waterways and great lakes? Instead of enlarging on the beauties of the Rhine, why not have books teaching them more about . . . the electric power generated by the Father of Waters and the wonderful Niagara?" This is a good question. Why make

an American boy, in the language of Gilbert, "an idiot who praises every country but his own?" In the present wreck of European civilization, there is a chance for the American partly to make up his deficiencies by taking a trip to the exhibition in San Francisco.

* * *

The art features of the January *Century* are prominent as usual. There are four pictures by Joseph Pennell, a drawing by A. B. Frost, Hoffbauer's pictures in *The Soul of the French*, and the illustrations to a sketch by Estelle Loomis, all based on the war; Anna Whelan Betts has an exquisite colored frontispiece, *Coming Home* for Christmas, and Walter King Stone and Charles Livingston Bull draw for their own article, *Footnotes from the Book of Nature*. Arthur Rackham's painting, *The Haunted Wood*, is another delightful piece of work.

* * *

Strange as it may seem, there are thousands of devout people in the United States and Canada who still believe it a sinful waste of time to read fiction. The publishers of the *Wide World Magazine* have cleverly supplied a fund of perfectly unobjectionable true stories for the wants of such people. As readers of accounts of the present war may have observed, real life is not wanting in excitement, and indeed compares very favorably on that score with the best fiction. The January, 1915, number of the *Wide World* takes the reader all over the globe as usual and furnishes quite enough stimulus to the average small boy to start him off on a career of adventure.

Meetings of Local Medical Societies.

MONDAY, January 25th.—Therapeutic Club, New York (annual); Medical Society of the County of New York; Psychiatric Society of Ward's Island; Poughkeepsie Academy of Medicine.

TUESDAY, January 26th.—New York Psychoanalytic Society; New York Dermatological Society; Metropolitan Medical Society of New York City; Buffalo Academy of Medicine (Section in Pathology); New York Medical Union; New York Otological Society; New York City Riverside Practitioners' Society (annual); Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York (annual).

WEDNESDAY, January 27th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Society of Internal Medicine; Schenectady Academy of Medicine.

THURSDAY, January 28th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Ex-Intern Society of Seney Hospital, Brooklyn; Medical Union, Buffalo (annual); Hospital Graduates' Club, New York (annual); New York Physicians' Association.

FRIDAY, January 29th.—Academy of Pathological Science, New York; Hospital Graduates' Club, Brooklyn (annual).

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending January 13, 1915:

Anderson, J. F., Surgeon. Directed to make not more than four trips to Ellis Island, N. Y., during the present fiscal year to obtain infectious material and for observation of infectious diseases now being investigated. Cofer, L. E., Assistant Surgeon General. Granted ten days' leave of absence from January 18, 1915. Converse, G. M., Acting Assistant Surgeon. Granted six months' leave of absence without pay, from January 16, 1915. Foster, A. D., Surgeon. Granted seven days' leave of absence from January 11, 1915. Fox, Carroll, Surgeon. Directed to proceed to Toledo, Ohio, for the purpose of conducting an investigation of existing sanitary or-

ganization and administration. **Hughes**, T. E., Assistant Surgeon, Relieved from duty at the Marine Hospital, Mobile, Ala., and directed to proceed to Wilmington, N. C., and report to the commanding officer of the United States Revenue Cutter *Seminole* for duty. **Pierce**, C. C., Surgeon. Directed to proceed to San Francisco, Cal., for the purpose of superintending the installation and taking charge of the Service exhibit at the Panama-Pacific International Exposition. **Williams**, L. L., Surgeon. Granted one day's leave of absence, January 12, 1915.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending January 16, 1915:

Anderson, Everett A., First Lieutenant, Medical Reserve Corps. Relieved from duty in the Philippines Department on or about January 15, 1915, and will proceed to the United States for further orders. **Bratton**, Thomas S., Major, Medical Corps. Granted one month's leave of absence. **Gentry**, Ernest R., Captain, Medical Corps. Leave of absence extended one month. **Gilchrist**, Harry L., Major, Medical Corps. Will take the correspondence course in the Army Field Service and Correspondent School for Medical Officers, Fort Leavenworth, Kansas. **Huber**, Edward G., Captain, Medical Corps. Granted three months' leave of absence to take effect upon his relief from duty at the Army and Navy General Hospital, Hot Springs, Arkansas. **Skinner**, George A., Major, Medical Corps. Granted three months' leave of absence to take effect upon his arrival in the United States. **Thomason**, H. D., Captain, Medical Corps. Directed to proceed from Fort Sam Houston, Texas, to Fort Bliss, Texas, for temporary duty.

Each of the following officers of the Medical Reserve Corps, upon relief from duty at the post specified after his name, will proceed to his home, and upon arrival there will report by telegraph to the Adjutant General of the Army: First Lieutenant Victor E. Putnam, Fort Miley, California; First Lieutenant J. Vincent Palisi, Fort Logan H. Roots, Arkansas; First Lieutenant Emile L. De Lanney, Fort Crook, Nebraska; First Lieutenant William E. Shea, Fort Missoula, Montana, and First Lieutenant James A. Robertson, Fort Thomas, Kentucky. Each of these officers is relieved from active duty in the Medical Reserve Corps upon the expiration of his leave of absence.

Leave of absence is granted to each of the following named officers of the Medical Reserve Corps, as indicated after his name, to take effect upon his arrival at his home: First Lieutenant Victor E. Putnam, one month and five days; First Lieutenant J. Vincent Palisi, one month and nine days; First Lieutenant Emile L. De Lanney, one month and eleven days; First Lieutenant Emile E. Shea, one month and eleven days.

Births, Marriages, and Deaths.

Born.

Bachmeyer.—In Cincinnati, Ohio, on Tuesday, January 12th, to Dr. and Mrs. Arthur C. Bachmeyer, a son. **Jager**.—In North Emporia, Kansas, on Tuesday, January 5th, to Dr. and Mrs. Thor Jager, a daughter.

Married.

Beck—Akin.—In Lawrenceburg, Ind., on Saturday, January 9th, Dr. Condie B. Beck and Mrs. Julia Akin. **Burgoyne—Page**.—In Columbus, Ohio, on Wednesday, January 27th, Dr. John Attig Burgoyne and Miss Harriet Sharp Page. **Hazzlett—Helgman**.—In Philadelphia, on Wednesday, January 6th, Dr. Almon Hazzlett and Miss Josephine Helgman. **Miles—Zink**.—In Bridgeport, Conn., on Saturday, January 9th, Dr. Harry S. Miles and Miss Edith Zink. **Recht—Munn**.—In New York, on Saturday, January 2d, Mr. Charles Recht and Dr. Arstine Pixley Munn. **Sell—Johns**.—In McSherrytown, Pa., on Tuesday, December 29th, Dr. Roger K. Sell and Miss Genevieve Johns. **Tucker—Hobbs**.—In Lynn, Mass., on Monday, January 4th, Dr. Arthur Wallace Tucker and Miss Ruby Etta Hobbs. **Wagner—Jennings**.—In Palacios, Texas, on Saturday, January 2d, Dr. Joseph Ralph Wagner and Dr. Harriet Jennings.

Died.

Adams.—In Kingston, Mass., on Friday, January 1st, Dr. Wendell Holmes Adams, aged sixty-one years. **Bezou**.—In New Orleans, La., on Sunday, January 10th, Dr. Henry Bezou, aged sixty-four years. **Boggs**.—In Altadena, Cal., on Tuesday, January 5th, Dr. Walter DeWitt Boggs, aged thirty-three years. **Boothe**.—In Philadelphia, on Sunday, January 3d, Dr. J. Henry Boothe. **Boyd**.—In St. Louis, Mo., on Monday, January 4th, Dr. F. Robert Boyd, aged sixty-three years. **Bradford**.—In New York, on Sunday, January 10th, Dr. Harry C. Bradford, aged fifty years. **Brumund**.—In Calais, Me., on Friday, January 1st, Dr. Diedrick A. Brumund, aged forty years. **Chancellor**.—In Washington, D. C., on Sunday, January 3d, Dr. Charles W. Chancellor, aged eighty-three years. **Chapman**.—In Havana, Cuba, on Thursday, December 24th, Dr. John M. Chapman, aged forty years. **Cornmiller**.—In Baltimore, Md., on Monday, January 4th, Dr. John Cornmiller, aged eighty-two years. **Couch**.—In Springfield, Mass., on Sunday, January 10th, Dr. Franklin Manley Couch, aged fifty-six years. **Dansereau**.—In Thibodeaux, La., on Saturday, January 2d, Dr. H. P. Dansereau, aged eighty-two years. **Delprano**.—In South Norwalk, Conn., on Thursday, January 7th, Dr. Vincenzo Delprano, aged twenty-seven years. **Donovan**.—In Scranton, Pa., on Friday, January 8th, Dr. C. C. Donovan, Jr., aged twenty-three years. **Fischer**.—In St. Louis, Mo., on Friday, January 8th, Dr. Waldemar E. Fischer. **Ford**.—In Morristown, N. J., on Saturday, January 9th, Dr. Charlotte W. Ford. **Gardner**.—In Narragansett, Pier, R. I., on Tuesday, January 5th, Dr. Clarence Eugene Gardner, aged thirty-seven years. **Hard**.—In Sunbury, Pa., on Wednesday, January 13th, Dr. John T. Hard, aged sixty-five years. **Howe**.—In Lexington, Ky., on Saturday, January 2d, Dr. William D. Howe, aged forty-nine years. **Jackson**.—In Lake Placid, N. Y., on Monday, January 4th, Dr. Charles Ross Jackson, aged forty-eight years. **Jerman**.—In Greensburg, Ind., on Tuesday, January 5th, Dr. L. W. D. Jerman, aged seventy-seven years. **Jones**.—In Wilkinsburg, Pa., on Wednesday, January 6th, Dr. Emery Jones, aged fifty-five years. **Keys**.—In Fate, Texas, on Tuesday, January 5th, Dr. Benjamin E. Keys, aged forty years. **Lefils**.—In Montreal, Canada, on Thursday, January 7th, Dr. Fred Lefils, aged forty-six years. **McLaurin**.—In Toombsville, Miss., on Tuesday, January 5th, Dr. J. W. McLaurin, aged fifty-five years. **Meek**.—In Columbus, Miss., on Friday, January 1st, Dr. Charles C. Meek, aged thirty years. **Millichamp**.—In Guelph, Ont., on Thursday, January 7th, Dr. George Ernest Millichamp, aged forty-two years. **Montgomery**.—In Saugerties, N. Y., on Friday, January 15th, Dr. Charles T. Montgomery, aged sixty-six years. **Nash**.—In Maryville, Mo., on Friday, January 8th, Dr. George Allen Nash, aged sixty-six years. **Norcross**.—In Auburn, Me., on Thursday, January 7th, Dr. Winfield Scott Norcross, aged seventy years. **Pound**.—In Jeffersonton, Ky., on Saturday, January 9th, Dr. Thomas P. D. Pound, aged seventy years. **Rice**.—In Catlettsburg, Ky., on Wednesday, January 6th, Dr. Berryman S. Rice, aged seventy-six years. **Seyferth**.—In Baltimore, Md., on Saturday, January 9th, Dr. Kurt Seyferth, aged sixty-two years. **Sheehan**.—In New York, on Thursday, January 14th, Dr. William J. Sheehan, aged forty-four years. **Siddons**.—In Marion, Ind., on Saturday, January 9th, Dr. James O. Siddons, aged seventy-eight years. **Smith**.—In Riverside, Conn., on Saturday, January 9th, Dr. Charles Smith, aged forty-six years. **Taylor**.—In Henderson, Ky., on Saturday, January 9th, Dr. Thomas Waller Taylor, aged ninety-two years. **Thomas**.—In Handley, Texas, on Friday, January 1st, Dr. Herschel G. Thomas, aged fifty-three years. **Thompson**.—In West Liberty, Pa., on Saturday, January 9th, Dr. Edwin C. Thompson, aged fifty-four years. **Thompson**.—In Jackson, Tenn., on Wednesday, January 6th, Dr. William Thompson, aged eighty-nine years. **Weir**.—In Portland, Ore., on Saturday, January 2d, Dr. Fred Hamilton Weir, aged fifty-one years. **Wiley**.—In Lexington, Ky., on Monday, January 11th, Dr. Edward Maxwell Wiley, aged sixty-four years. **Wilson**.—In Cambridge Springs, Pa., on Wednesday, January 6th, Dr. Bert L. Wilson, of Erie, Pa., aged forty-one years. **Wood**.—In Edmondton, Ky., on Friday, January 8th, Dr. Joseph W. Wood, aged eighty years.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843

VOL. CI, No. 5.

NEW YORK, SATURDAY, JANUARY 30, 1915.

WHOLE No. 1887.

Original Communications.

MODERN BONE AND JOINT SURGERY.*

BY ASTLEY P. C. ASHURST, M. D.,
Philadelphia.

Even so short a time as twenty years ago, bone and joint surgery consisted essentially in operations for necrosis, and excisions of joints for advanced tuberculous disease, or to remedy disability due to ankylosis in bad position. Osteotomies were done for the deformities due to rickets and for deformity at the hip joint following healed coxalgia; and even in cases of marked disability from non-union of fractures, operative fixation was undertaken, and in many cases with a great measure of success. An occasional bone cyst was opened and its interior scraped, but in most cases of tumors in bone, amputation was done. Though modern methods have been gradually developed during this period, it is only within the last five years that what may be described as modern bone and joint surgery has begun to exist. The old operations are still done, but there has been added a large number of new procedures of the utmost importance. These have been made possible largely by the perfection of aseptic technic, and may be discussed under the headings, Treatment of Fractures, Treatment of Ankylosis, and Bone Transplantation.

TREATMENT OF FRACTURES.

The general employment of the x rays to control the reduction of bone fragments, and the increased interest of accident insurance companies in the results of treatment, have brought the treatment of fractures once again into a very important place in surgery. Indeed it is becoming almost a surgical specialty; and certainly it is true that most of the bad results are directly due to ignorance and carelessness in treatment. Patients with broken bones should be treated by surgeons whenever the latter are available. Though the general practitioner cannot always avoid having fracture cases under his care, he will do much better not to attempt to care for them if he can possibly avoid it; he has neither the training nor the facilities which are required to secure the best results.

It may be admitted that accurate anatomical reduction of a fracture in the shaft of a long bone is not always necessary to secure perfect functional recovery; yet it is very desirable to secure such reduction, especially in the lower extremity, where

shortening or axial displacement is much less easily compensated for than in the arm or forearm; and if the fracture is near a joint, it is imperative to secure anatomical replacement of the fragments at the risk of lasting disability if this is neglected. Fortunately it often is possible to secure reduction and to maintain it without resort to formal operation, as the following instance shows:

CASE I. Fracture of surgical neck of left humerus impacted in bad position; reduction under anesthetic. Robert E., aged thirty-five years, was admitted to Doctor Frazier's service in the Episcopal Hospital, September 8, 1914. He had fallen thirty feet, and sustained, in addition to the injury mentioned above, fractures of the left radius and ulna above the wrist, and a fracture of the left femur below the trochanters. Here was a case of multiple fractures, in a young and healthy adult. Fig. 1 shows the position of the shoulder fragments on admission. The shaft was impacted into the head, but the position was very bad indeed and reduction was imperative. The day after admission, the patient was etherized, and the impaction at the shoulder was broken up by manipulation, the fractured ends were reduced, and a suitable dressing was applied. Fig. 2 is from a skiagraph made after reduction. This shows that the upper fragment was rotated slightly outward; to meet this indication the arm was dressed in abduction. The fractures of the forearm and the femur were also reduced while the patient was under the anesthetic, and very satisfactory positions secured. Convalescence was uneventful. Within two weeks time the fractures of the humerus and forearm had united, and union was progressing in the femur.

If sufficient reduction is not possible by manipulation even under an anesthetic, and with all the aids known to surgery, it is proper to resort to open operation.

CASE II. Fracture of the shaft of left femur, irreducible without operation; fixation by plate. Robert F., aged twenty-three years, first came under my care in Doctor Frazier's service at the Episcopal Hospital, August 1, 1911. Two weeks previously this patient was knocked down and run over by a wagon, sustaining a fracture of the left femur above its middle. August 2d, I had the patient etherized, and made attempts to reduce the fracture, in which there was overlapping of the fragments to the extent of one inch and a half (4 cm.). Although end-to-end apposition was not secured (Fig. 3), the shortening was reduced to one half inch (1.25 cm.). This might have been considered sufficient reduction if the patient was old and feeble; but in a healthy young man, with his life before him, a better result evidently was demanded. Accordingly on August 7th, the patient was again anesthetized, the fractured ends were exposed, reduced, and fixed by plating (Fig. 4). The patient went home on crutches about two months later, and had no further disability. There was no shortening, and free motion in the knee was secured (75° to 180°).

If fractures were properly treated from the first, subsequent operations for malunion or for non-union would be very rare. Unfortunately it is still very often necessary to undertake operative correction of such disabilities. In some cases of mal-

*Read before the College of Physicians of Philadelphia, October 7, 1911.

union simple subcutaneous osteotomy will suffice to restore the axis of the bone; or excision of exuberant callus or of the projecting ends of the fragments may bring relief. In other cases formal re-

ture, with the deformity due to the unfortunate accident after the first operation.

On August 29, 1914, an open operation was done; the flexor tendons were loosened up from the fractured surfaces; the radius was divided, the fractured ends were resected until proper alignment was secured; the head of the ulna was removed subperiosteally; and the radius fixed by a plate. The result was seen in Fig. 6. The normal contours of the articulating surfaces were restored, the ulna now being no longer than the radius, and the carpal surface of the radius faced forward (toward the flexor surface) instead of backward (toward the extensor surface) as formerly. Healing was delayed by some sloughing of the edge of the skin flap, but within five weeks after operation the woman could oppose her thumb easily to all the fingers, and had some power of grasping in the hand. Unfortunately neuritic pains persist and long aftertreatments will be requisite.

CASE IV. Malunion of bimalleolar fracture at the right ankle; absolute disability; resection and screw fixation. Catharine R., aged forty years, sustained an inversion fracture of both malleoli at the right ankle in January, 1914. In June, 1914, she came to the orthopedic service of the Episcopal Hospital because she was still obliged to use crutches, pain preventing her from bearing any weight whatever on her foot. Fig. 7 shows the position of the bones at this time. It was evidently hopeless to look for improvement when none whatever had occurred in five months, and such marked deformity was present. Accordingly, on June 27, 1914, I exposed the fractures of both tibia and fibula, separated the fragments by chisel along the lines of fracture, reduced the deformity, and fixed the bones in proper position with screws. No retentive dressing was required, owing to the security of the screw fix-



FIG. 1. Case 1, impacted fracture of surgical neck of humerus.

section of the fractured bone or bones must be undertaken, with fixation by plate or screw.

CASE III. Unreduced Colles's fracture of the right radius; absolute disability, not relieved by subcutaneous osteotomy. Resection and plating. Lena F., aged forty-nine years, sustained a Colles's fracture of the right radius, in June, 1913. After two months of treatment she was etherized, and an attempt at reduction was made. This was not successful; marked silver fork deformity and radial deviation of the hand persisted. In the autumn of 1913, this patient was referred to the orthopedic service of the Episcopal Hospital, and first came under my care. The hand was perfectly useless, and, what was even worse, was constantly painful, with referred pains up to the elbow and shoulder. For five months, massage and passive movements were applied, with little if any improvement. Therefore in April, 1914, subcutaneous osteotomy of the radius was done in the hope that restoration of the axis of the bone might give some usefulness to her hand or at least relieve the neuritic pains. The patient felt so much better after the operation that a very few days after the splint was discontinued (four weeks after operation), she endeavored with this hand to support the head of her daughter, during a convulsive attack. This gave her wrist a very severe wrench, which incapacitated her for some weeks. The pains in the elbow and shoulder, however, ceased almost entirely after the osteotomy.

As considerable deformity remained, and the hand was still almost entirely useless four months after the first operation, it was determined to operate again. Fig. 5 shows the appearance of the bones at this time. There was marked radial deviation of the hand, the radius being considerably shorter than the ulna, while the carpal articulation was further disturbed by the dorsal displacement of the lower radial fragment, whose carpal surface faced toward the extensor rather than toward the flexor surface of the forearm. The healed osteotomy is visible above the frac-



FIG. 2. The condition in Case 1 after reduction.

tion. This enabled light passive motion to be instituted the day after operation, and within ten days, when the wounds had healed, no pain or disability remained. The patient was forbidden to bear any weight on her foot for more than two months. At the end of this time, on making the first attempt to walk, she threw away her crutches and walked painlessly, though with a slight limp from stiffness. Last week, she tells me, she visited Mauch Chunk, and after a ride on the "Switchback" walked all

the way down the side of the mountain without difficulty. Fig. 8 shows the position of the bones after operation.

In the case of both the patients whose histories have just been reported (Cases III and IV), the

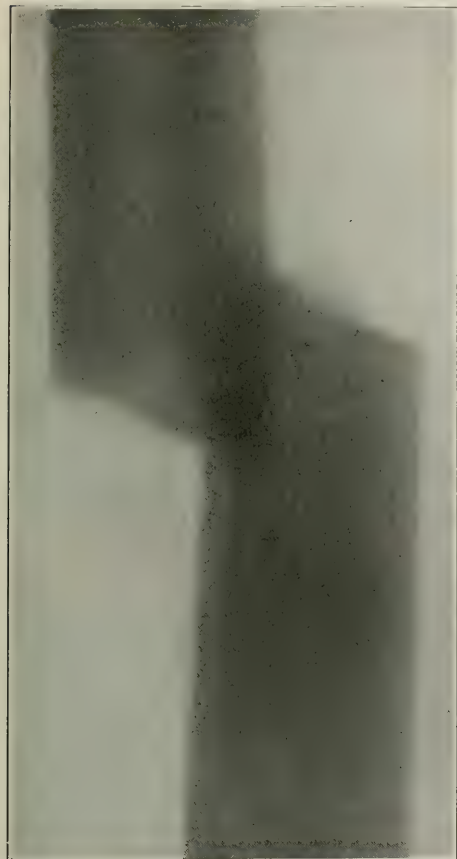


FIG. 3.—Fracture of left femur (Case IV), irreducible save by operation.

proper time for operation was soon after the injury, when it was found impossible to secure reduction of the fragments. In both cases many months of discomfort would have been saved, and the ultimate result would almost certainly have been better than with delayed operation.

Nonunion of a fractured bone presents even a more difficult problem than malunion. Resection and fixation by plates or screws do not always succeed in arousing sufficient osteogenesis to secure firm union. In many cases it is better to bridge the gap by a bone transplant, taken from the same bone or elsewhere in the patient's body. I have reported before the Philadelphia Academy of Surgery (*Annals of Surgery*, ii, 779, 1914) the very satisfactory result obtained by bone transplantation in a

case of ununited fracture of the neck of the femur, and give below the notes of another case of nonunion in which transplantation of bone was employed.

CASE V. Ununited fracture of radius and ulna: fixation by bone transplant and steel plate. Fred. H., aged thirty-five years, on May 27, 1913, was caught in shafting and swung around the machinery in his mill until the power could be shut off. He was admitted at once to the Episcopal Hospital. He sustained a compound fracture of both bones of the right forearm, all four bone ends projecting through the soft parts; as well as a compound double fracture of the humerus of the same arm, one of the fragments here also projecting through the skin. I cleansed the wounds thoroughly, repaired the damage to the soft parts, and reduced the fractures as far as possible. The humerus healed by firm bony union without appreciable deformity; but though healing of the soft parts in the fore-

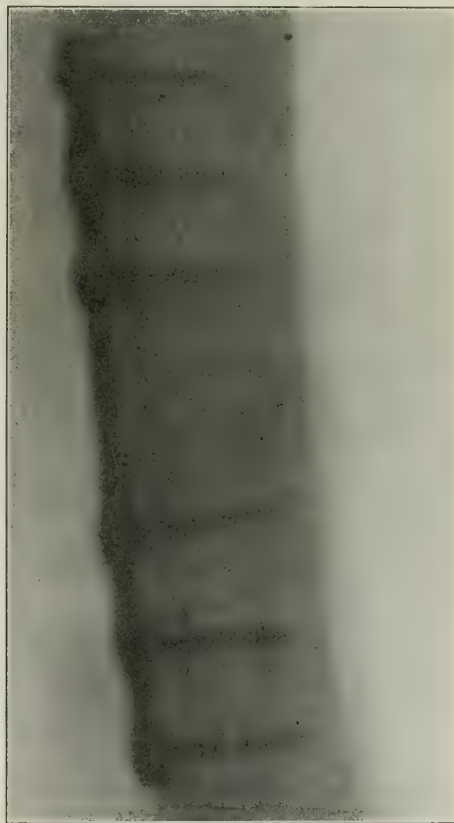


FIG. 4.—Fracture in Case II, reduced and fixed by plating.

arm occurred as soon as could be expected, the bones failed to unite. They maintained fair position, but the ulna, part of which had to be excised at the time of the accident, remained entirely ununited; while only fibrous union was secured in the radius (Fig. 9). Operation to remedy this nonunion was done September 9, 1914 (sixteen months after the original injury); the radius was resected until healthy marrow was exposed, and then plated; while the ulnar fragments, the gap between whose ends could not

be bridged without sacrificing an undue length of the radius, were united by a transplant cut from the ulna higher up. Fig. 10 is from a skiagraph made a few days after operation. Though bony union had not taken place in either the radius or ulna at the end of four months, firm fibrous union was secured, and the usefulness and stability of the arm markedly increased.

TREATMENT OF ANKYLOSIS.

Ankylosis was formerly treated by excision of the affected joint. The classical excision, of the



FIG. 5.—Unreduced Colles' fractures, showing condition prior to second operation (Case III).

elbow or shoulder, was designed to secure a movable joint; in the knee, on the other hand, excision was adopted only when the joint was ankylosed in bad position, and aimed to secure a stiff joint in good position. The modern operation of arthroplasty (by interposition of fat and fascia flaps) enables the patient to secure, not

only much greater stability at the elbow and shoulder than was secured by excision, but even at the knee and hip a fair degree of motion may be secured without impairing the stability of these joints. This is of especial value at the knee, as a stiff hip is more readily compensated for; but the operation is difficult, and not always successful. Probably if a surgeon obtains fifty per cent. of successful results in his arthroplasties at the knee, he will be doing well. Even if a full range of motion is not secured, the patient usually is satisfied to obtain enough motion to permit locomotion and to enable him to be seated comfortably. I select the following case for report here, because the operation of arthroplasty was done at both knee and elbow in the same patient.

FIG. 6.—Result of operation in Case III.

CASE VI. Ankylosis of elbow and knee; arthroplasty. Gertrude T., aged twenty-three years, applied to Doctor Harte's service at the Orthopedic Hospital on March 2, 1913, for ankylosis of the left elbow and the right knee. In May, 1912, when about seven months pregnant, but without any evident cause (such as preceding tonsillitis, influenza, etc.), this patient had felt pain and stiffness around her right hip during one entire day. That night

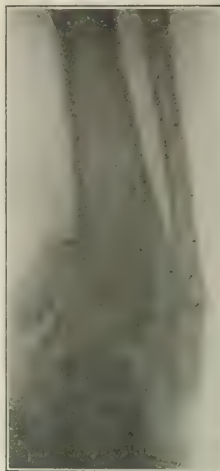


FIG. 7.—Malleolar fracture of right ankle (Case II); condition before operation.

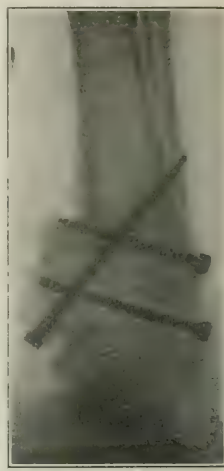


FIG. 8.—Position of bones in Case IV after operation.

she was awakened by pain in the left elbow, and next morning she found it swollen. The second night, the right knee became painful and swollen. She was not confined to bed until the fourth day, and was sent to the Philadelphia Hospital on the sixth day of illness. She remained in bed

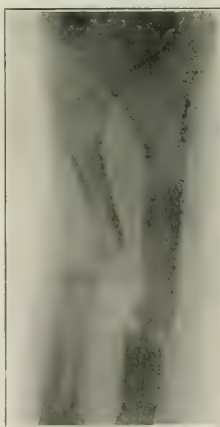


FIG. 9.—Case V one year after injury.



FIG. 10.—Skiagraph made in Case V after second operation of plating and transplanting.

in the hospital for seven weeks, with fever and acute arthritis. The pregnancy terminated normally after convalescence.

When first seen at the Orthopedic Hospital, ten months after the onset of the arthritis, this young woman was



FIG. 11.—Condition of Case VI on admission.

FIG. 12.—Showing amount of possible flexion in Case VI three months after operation.

FIG. 13.—Showing amount of extension possible in Case VI three months after operation.

unable to walk without crutches. There was about ten degrees of motion in the knee (130° to 140°), which was not painful. The patella was ankylosed to the condyles of the femur, but the femur and tibia were not united by bony ankylosis. At operation, however, it was found impossible to secure more than ten degrees of motion in the knee, even after the patella had been loosened from the condyles until the condyles themselves were resected; evidently the arthritis had distorted the articular surfaces so greatly as to prevent motion even though no bony ankylosis between tibia and femur was present. The elbow was fixed in bony ankylosis at an angle of 110° ; fortunately

when she returned to the hospital for a sprain of the knee due to a recent fall which had been operated on. Until this injury she had been able to walk about well without any support, going up and down stairs constantly, doing her own housework, and caring for her children. There was at this time free motion in the elbow (45° to 150°),



FIG. 14.—Tuberculosis of spine in girl four years of age (Case VII); condition on admission.

FIG. 15.—Result in Case VII of transplant from tibia to lower dorsal and lumbar vertebrae.

the radiohumeral and the upper radioulnar joints were not involved, as rotation in the forearm was normal.

Arthroplasty of the elbow was done, May 1, 1913, and of the knee three weeks later. Convalescence was uneventful. Free motion was secured in the elbow (50° to 160°), and fair motion in the knee (120° to 175°) by the time she was discharged from the hospital, three months after the last operation. At this time she was able to walk without crutches. Fig. 11 shows the condition on admission; Figs. 12 and 13 show respectively the amount of flexion and of extension present on discharge.

The patient was seen again, one year after operation,



FIG. 16.—Showing destruction of lower end of radius by giant celled sarcoma (Case VIII).

and in the recently sprained knee there was motion from 95° to 150° . As there was still some effusion in the knee from the recent injury, and motion was painful, it is probable that the full range of motion was not secured at this examination.

Examination, October 17, 1914, showed free motion in the elbow, from 45° to 150° ; there was active power of extension in the triceps, and

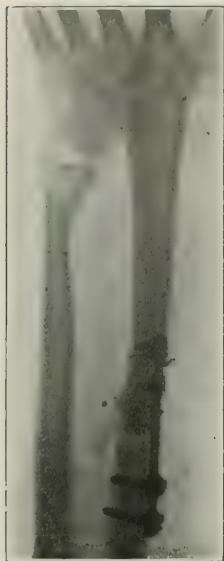


FIG. 17.—Result in the treatment of Case VII by transplant from the tibia, plating, and fixation with wire loop.

mitted to my service at the Episcopal Hospital, May 18, 1914, with tuberculosis of the spine of several months duration, hitherto untreated (Fig. 14). After one month's recumbency on a Bradford frame, the deformity had markedly decreased, and on June 27, 1914, a transplant was cut from the patient's tibia and inserted in the split spinous processes of the eleventh and twelfth thoracic and the first, second, third, fourth, and fifth lumbar vertebrae. This almost completely reduced the cyphos. Seven weeks later, however, it was found that the lower end of the transplant projected unduly beneath the skin, and a skiagraph showed that it had sprung loose from the fourth and fifth lumbar vertebrae. Accordingly, on August 15, 1914, after nicking the transplant with a saw, a green stick fracture was produced just below the spine of the third lumbar vertebra, and the end of the transplant was bent inward and imbedded again in the spinous processes of the fourth and fifth lumbar vertebrae. Six weeks after the last operation, the deformity was inconspicuous and the child's health perfect. (FIG. 15.)



FIG. 18.—Myeloma of radius (Case VIII); result of excision and insertion of bone transplant, three months after operation.

The object in fixing the spine by a bone transplant, of course, is to cure the disease by immobilizing the spine more thoroughly than can be accomplished in any other way. Incidentally this method prevents recurrence of deformity, or at least prevents increase of deformity if that which has already developed cannot be overcome by recumbency

before operation. It is my practice to put these patients to bed until the deformity has nearly or quite disappeared, and until they learn to lie reasonably quiet; then to operate, and to keep them in bed about six weeks after operation. They are then allowed to be about with a light brace, which is worn for about six months. Many patients, however, discard the brace contrary to advice very soon after operation. But, though I have never seen any evil consequences, I believe it is safer to wear a support for the time indicated. The operation in itself appears to be devoid of serious risk. I say this, notwithstanding the fact that the first patient



FIG. 19.—Another view of Case VIII.

on whom I employed it died of pneumonia, and another patient died of tuberculous meningitis about seven weeks after operation. A patient may die of pneumonia after any operation; and many a patient with tuberculosis of bone, who has had no operation acquires tuberculous meningitis while lying quietly in bed. So that these fatal issues are not, I believe, to be charged to the operation itself. It is noticeable that even very soon after the operation, the patients improve in health and seem to feel much stronger.

CASE VIII. Myeloma of radius; excision and transplantation of bone. Sophy M., aged twenty-two years, applied to Doctor Harte's service at the Orthopedic Hospital, February 20, 1913, with a cystic swelling of the wrist, which at first sight was mistaken for tuberculosis of the tendon sheaths. The history was that the swelling had gradually developed during the preceding year (since February, 1912) from no well ascertained cause. A skiagraph (Fig. 16) showed the lower end of the radius destroyed by a cyst, which, however, left the wrist joint and the overlying soft parts intact. On March 5, 1913, Doctor Harte opened and curetted the cyst, whose walls were very thin, there being scarcely any trace of bony tissue discernible. A transplant was cut from the tibia and inserted in

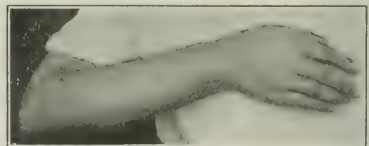


FIG. 20.—A third view of Case VIII.

the interior of the cyst to maintain the form of the bone and in the hope of stimulating osteogenesis. For months the local condition continued to improve. The tumor became smaller and its walls firmer; it lost its cystic feel, but the forearm remained abnormally large, and caused the patient considerable annoyance. A skiagraph made September 24, 1913 (six months after operation), showed that the transplant was being absorbed. Early in 1914 the tumor again began to soften, the local heat and discomfort increased, until finally in June, 1914, the girl consented to another operation. She was referred to my service at the Episcopal Hospital. On June 27, 1914, I excised the entire lower end of the radius, including its periosteum and arti-

¹Dr. Paul A. Lewis, pathologist to the Pennsylvania Hospital, reported that the growth was a giant called *Sarcoma*.

cular surface.² It was found that the extensor tendons of the thumb passed through a canal in the tumor, and while one of the tendons could be pulled out of this canal after being divided, the other could not be extracted and a couple of inches of it had to be removed with the tumor. Moreover, the tumor so overhung the carpal bones, although it had not broken through the articular surface of the radius, that it was impossible during the operation to outline its limits precisely, and the scaphoid and semilunar bones were inadvertently removed along with the tumor. A transplant was then cut from the tibia, five inches long, and of the thickness and shape of the lower end of the radius, and inserted in the large wound caused by removal of the tumor. This transplant was fixed to the shaft of the radius by a steel plate; the plate was screwed to the radius, but as the screws fixing it to the transplant twisted loose when half inserted, it was necessary to fix the plate to the transplant by a wire loop (Fig. 17). Healing was uneventful. A splint was worn for three months after the operation. At present, the transplant is firmly united to the shaft of the radius; there is rotation in the forearm through an arc of more than 90°, there is flexion in the wrist to 140°, and extension to a straight line (180°). The girl can make a good fist, and has fair power of grasping which is rapidly improving. Figs 18, 19, and 20 are from photographs made three months after operation.

Many other examples could be cited, exemplifying the value of modern surgical procedures in different lesions of the bones and joints. Nothing has been said of the treatment of dislocations otherwise irreducible by arthrotomy, reefing of the capsule, etc.; of the treatment of osteomyelitis by excision of the diaphysis, which gives admirable results in selected cases; nor of the treatment of paralytic flail joints by production of ankylosis (arthrodesis), which is an operation of the utmost value. The cases herein reported serve merely as samples of the kind of work that is now being done, and I trust they may stimulate the interest of the profession in a class of patients who are too often neglected, or in whom the most favorable time for operative correction of the disability is allowed to pass before the surgeon is consulted.

811 SPRUCE STREET.

INTERCOSTAL THORACOTOMY IN EMPYEMA.*

An Original Method.

By HOWARD LILIENTHAL, M. D., F. A. C. S.,

New York,

Attending Surgeon, Mt. Sinai Hospital; Visiting Surgeon,
Bellevue Hospital.

If I were to ask what mortality percentage should be expected in empyema of the thorax treated by operation, the reply, without special study or inquiry into the matter, might be that the death rate should not be more than say from three to seven per cent. Most men whom I have approached on the subject have considered that ten per cent. would be quite appalling. One gentleman, a general practitioner and surgeon of large practice, stated that he had never lost a single one of these cases. Yet A. O. Wilensky, in a careful study of 285 cases of all varieties of the disease, taken from the records of Mt. Sinai Hospital, to be published in the near

future, has calculated a mortality of twenty-six per cent.; and Lloyd, employing a method of his own, points with apparent pride to a mortality of twenty per cent. One in five! Surely there is good reason for us to continue our search for a procedure which will promise something better.

The usual history of the disease is that of a sequel of pneumonia, the accompanying pleural exudate becoming infected either by extension from the lung or by the aspirating needle. The latter accident may happen through infection carried by the needle or perhaps from a puncture wound of the diseased lung. At times the infection follows rupture during a septic bronchiectasis. Direct infection through a nonsurgical trauma is less common. There are also septic metastases and primary pleuritic pus infection and doubtless there are other causes of pus pleurisy.

Operations for the relief of this disease have been known since the days of ancient Greece. It is said that empyema of the thorax may resolve spontaneously, though it must be admitted that the exact diagnosis cannot be made without puncture. Aspiration, even of small quantities of pus, has been followed by cure, but as a rule a free opening into the pus cavity is necessary. Various operative procedures have been devised to secure drainage, from simple intercostal incision to multiple resection of the ribs. The modern operation with its resection of one or two ribs is well known and need not be described here.

In observing the work of most surgeons in this field, one is struck by what looks like haphazard methods. There is the usual opening of the pleura after the rib section has been removed, and a desultory examination of conditions with the aid of the finger. If the lung expands nicely and there are no large tough flakes of fibrin, the prognosis is supposed to be good, while if the adhesions prevent pulmonary expansion, we have been accustomed to looking forward to secondary operations, themselves far more grave and threatening to life than the primary one. With the presence of sacculations the prognosis for an immediate cure becomes worse, although the bacteriology of the disease is also of importance and should be taken into consideration. A pneumococcus infection gives a comparatively good outlook in suppurations of the pleural serous membrane—an interesting observation when we remember that the same organism is peculiarly fatal when it invades the peritoneum.

Operative surgery, naturally, can aid in direct proportion to the mechanical benefit which it secures. Therefore, we may expect recovery in proportion to the thoroughness of the exploration or the precision with which the cause of the condition can be removed. For example, a pneumococcus pyothorax consisting of a single cavity and without complicating adhesions, should yield promptly to the simplest form of drainage, while a suppuration diagnosed as empyema, but caused by the rupture of a bronchiectatic abscess, is one of the most trying conditions in surgery.

Exactness in preoperative diagnosis is greatly to be desired, and radiography should be added to our other methods whenever the slightest doubt exists as to the cause of the disease or its anatomical form.

²Dr. C. Y. White, director of the pathological laboratories of the Episcopal Hospital, reported that the tumor was a giant celled sarcoma.

*Read before the Harlem Medical Association of the City of New York, November 4, 1914.

A case in point is that of a child with the physical signs of left empyema, but with a history not corresponding. The cough and fever had continued for over two months. The child was brought to Bellevue Hospital, and in the days before Röntgen's discovery it would have been operated upon, but x rays revealed a foreign body—a metal collar button—the presence of which had been unsuspected. Doctor Yankauer, at my invitation, removed the button with the aid of the bronchoscope and in a few days the "empyema" had completely vanished and the child was well.

The condition of pyothorax having been proved, the case is one for surgery. Assuming the infection to be nontuberculous, drainage by thoracotomy is in nearly all cases imperative. But the usual operation, as I have hinted, is inexact and often insufficient. One reason why this operation has in these progressive days remained unsurgical is because visual exploration of the thoracic cavity has been considered dangerous, the opening in the chest to be large enough for thoroughness necessitating multiple and wide rib resection, which in acute disease is fraught with serious peril. Yet Lloyd (*Am. Surg.*, XLV, p. 373) made a distinct advance when he devised and systematically practised this procedure. His idea was to perform pneumolysis at the time of the primary operation so as to insure complete lung expansion at once. He makes no mention, though it was doubtless in his mind, of the exploration of the visceral pleura with the object of discovering the focus of infection. Also, through the opening suggested by Lloyd actual observation of the entire cavity could hardly be secured.

Last April, at the meeting of the State medical association in New York, I discussed a paper on empyema which was presented by Doctor Dowd. I then stated that it was my intention to work along what appeared to me rational surgical lines in the primary operative attack. I had always regarded the mere drainage of an empyema as a makeshift, because if the infecting focus did not disappear spontaneously after operation the conditions for persistent sinus would remain; or, if by reason of adhesions sacculation should exist remote from the wound the opening could hardly be expected to drain all the cavities. Even tough lymph adherent to parietal and visceral pleura and out of reach, would eventually organize and bind the lung so that normal expansion could not occur. From my observations I have concluded that progressive contraction of the lung follows the organized cicatrization of these visceral pleuritic exudates. This would mean secondary operations, with their deformity, suffering, and danger.

I determined to make use of methods which I had employed in radical operations upon the lung itself, with the hope that the quick yet ample entrance into the chest might enable me to deal once and for all with the cause of the disease as well as the conditions making for its continuance. It was supposed that the discovery of a primary focus would naturally be a rather unusual occurrence, while radical drainage with freeing of all confining bands and adhesions would be common. In this I was not mistaken.

DESCRIPTION OF THE METHOD.

If the patient's condition is so poor because of embarrassed respiration with cyanosis and feeble heart action, that even a minor operative procedure would be attended with serious risk, it is obvious that the simplest form of relief should be practised as a preliminary to anything radical.

When the heart has been forced far from its normal position, aspiration may be attended with greater danger than incision, since the suction draws the displaced organ forcibly back, sometimes loosening flakes of fibrin from within the vessels with consequent fatal embolism. A small incision, however, permits the pus to flow out slowly, air taking the place of a portion at least of the space formerly occupied by the fluid. The heart then swings back, and normal conditions adjust themselves gradually. Therefore, in these desperate cases I advise making a tiny intercostal incision, under local anesthesia, with the insertion of a thick walled drainage tube of narrow calibre. In a few days, when the patient's condition warrants it, the operation proper may be undertaken.

In anesthesia with nitrous oxide and oxygen by the inhalation method, a long intercostal incision is made, beginning at a point just outside the costal angle and continuing for the length of the bony rib. A part of the latissimus dorsi and serratus magnus must be divided. This incision throughout its entire length should enter the pleural cavity. The seventh interspace may be selected as the proper site, but even here we must take great care not to wound the diaphragm, which may arch abnormally high and lie in close contact with the chest wall. I have twice met with this accident in thoracic surgery, and although no harm followed because the opening was promptly closed, it is an avoidable accident not consistent with the highest skill in operating.

With blunt retractors the ribs are now separated until the blades of a rib spreader can be inserted. Thus far there should be little hemorrhage. In a child the rib retraction can be accomplished with strong blunt retractors alone, but in the adult a powerful rib retractor will be found essential. In working upon the left side the forced retraction must be carried out cautiously, while the operator observes by sight and touch the region of the pericardium. It is conceivable that this membrane, covered by thick plastic exudate, may be ruptured by too violent stretching.

When wide retraction has been accomplished and the chest emptied of fluid, the lung may be inspected. Probably a uniform or mottled grayish membrane will be seen covering the entire viscus and obliterating the landmarks. Systematic inspection should be made, however, with a view to determining, if possible, the site and character of the focus of infection. A minute point of gangrene, a small bronchiectatic abscess, a sign of traumatism perhaps inflicted by the aspirating needle, or the presence of a broken down tumor should be dealt with as occasion seems to demand.

The entire hand being introduced into the adult thoracic cavity, adhesions may be broken down and lymph coagula removed. Still, in

acute cases there should be little or no hemorrhage. With the retraction in the adult of, say, from four to seven inches, perfect visual exploration is now possible. In children the opening, though smaller, will be found ample for exact manipulation. The shock of the rib retraction, even with partial dislocation of the heads of the bones, is not great. If it is now seen that the lung is bound down by pleural exudate, decortication may, in acute cases, be easily performed, while in the chronic cases, decortication or multiple cross hatching incisions through the pleura, in the manner described by Ransohoff, may be made. The anesthetic being partly withdrawn, the patient will strain or cry out and thus distend the lung until it fills the chest. If the condition is good, we should not desist until complete pulmonary expansion has been secured.

So long as no bronchus is injured, slight unavoidable wounding of the pulmonary tissue appears to do no harm. The occurrence is recognized by the appearance of bloody froth at the site of injury.

When satisfactory expansion has been secured and the intrathoracic work has been finished, the rib spreader may be removed and the chest permitted to assume its normal shape. It will be found that the ribs come together nicely, but that on account of the division of such a large part of the intercostal muscles the bones are not as firmly drawn together as when the incision is shorter. Two or three short drainage tubes, carefully secured so that they cannot slip within the chest, are now put in, and it will be found that they are not obstructed by rib pressure. A few interrupted sutures through the skin will close the long wound sufficiently, one or two additional sutures helping to approximate the divided latissimus dorsi.

A thick dry dressing is now applied and the patient sent back to bed. Breathing exercises and especially blowing exercises are to be commenced almost immediately. If we are dealing with a simple pneumococcus case uncomplicated by unresolved pneumonia, we may hope for a complete closure of the wound in two weeks. At no time should irrigation be practised.

In the complicated cases and especially in the metastatic empyemas, revision may be required. If so, it is merely necessary to reopen the wound and again separate the ribs with the spreader far enough to permit exploration of the suppurating cavity. This secondary opening of the chest is a simple matter and amounts to little more than a dressing under anesthesia. Should it be found, however, that pockets have reformed or that lung retraction has recurred, it may be necessary to repeat certain steps of the primary operation. There should be a rib resection unless after a long time it becomes obvious that a systematic thoracoplasty cannot be avoided.

My experience with this method has been limited to seven cases. Two of the patients died, one a man with gangrenous pleurisy, the other a child of three years of age, of a recurrence of her pneumonia six weeks after the original operation and before the sinus healed. One case, a child of four years operated upon some months ago for sacculated empyema following a pertussis pneumonia, is not yet well. The von Pirquet test is strongly positive and tuberculosis is strongly suspected.¹ The other patients are well. Their histories are to be reported in

full when the method has been tested in a larger number of cases.

From my experience thus far, however, I conclude that the operation is not a shocking one, that the danger of hemorrhage is less than with rib resection, and that the procedure is in line with modern surgical principles.

48 EAST SEVENTY-FOURTH STREET.

ENDOTHELIOMA OF THE SOFT PALATE.*

By ROBERT H. IVY, M. D.,

Philadelphia,

Assistant Instructor in Surgery, University of Pennsylvania.

In a recent paper entitled *Mixed Cell Tumors of the Soft Palate*, Sturgis (*Surgery, Gynecology, and Obstetrics*, iv, 456, 1914) has collected thirteen cases from the literature and reports an additional one of his own. In this collection the growths, while exhibiting close clinical similarities, to which the

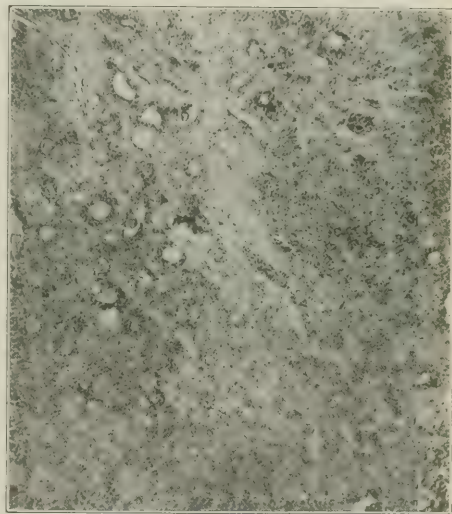


FIG. 1.—Photomicrograph of endothelioma of soft palate. Low power.

present case conforms, at the time showed certain variations from the histological aspect, some of them containing definite epithelial tissue, others muscle cells, others cartilage, still others endothelial proliferation, or various combinations of these elements. In many of these cases the histological examination was inadequately reported by those who observed them. Some of the writers speak of the presence of epithelial adenomatous elements and others of mesoblastic endothelial cells, referring probably to the same cells. In the present case no cartilage, muscle, or other strongly specialized cells as described in other reported cases were found. Sections of this tissue have been examined by several pathologists; some regard the cells as of

¹Since this paper was read, a scraping from the sinus has been pronounced tuberculous.

²Reported before the Pathological Society of Philadelphia, May 28, 1914.

epithelial origin, though the majority look upon the tumor as an endothelioma, with which latter view the writer is inclined to agree.

CASE. Woman, aged thirty-one years, who for four years had noticed a slowly enlarging lump on the left side of the soft palate. This never caused pain, but interfered somewhat with speech and deglutition. The growth was about the size of a walnut, soft and resilient, rather freely movable, and covered by the normal mucous membrane of the palate, which was not ulcerated at any point. It was removed by Dr. M. H. Cryer under novocaine and adrenaline infiltration. The tumor shelled out without difficulty. It consisted of soft material of a light grayish color. The parts healed in two weeks without complications.

Microscopic examination shows a stroma of pink staining homogeneous substance and large oval shaped cells

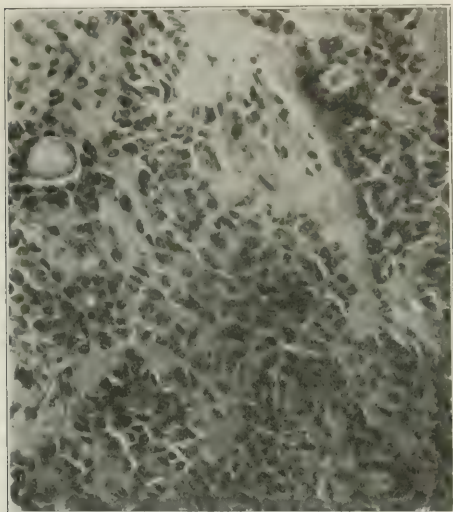


FIG. 2. Photomicrograph of endothelioma of soft palate. High power.

with vesicular nuclei, taking a deep hematoxylin stain. These cells in some parts of the growth were arranged in the form of alveoli, the lumina of which contained a pink staining gelatinous material somewhat resembling colloid, while in other situations the cells formed irregular extensions through the stroma, with no basement membrane or line of demarcation of any kind. (Figs. 1 and 2.) The alveolar arrangement of the cells and the contents of the spaces were somewhat suggestive of thyroid tissue, but occasionally one saw what appeared to be degenerated blood cells in these lumina. The tumor apparently belonged to a group of rare growths that have been variously classified as mixed tumors, adenomas, adenosarcomas, and endotheliomas, the confusion arising chiefly from differences of opinion as to the exact nature of some of the cellular elements.

1623 WALNUT STREET.

Treatment of Pyorrhœa alveolaris.—M. T. Barrett (*Dental Cosmos* for August, 1914) injects a 0.5 per cent. solution of emetine hydrochloride with a hypodermic needle, into the pockets, the point passing directly into their walls, filling them with the solution; pressure on the piston of the syringe being exerted during withdrawal of the needle. In several cases the pus had disappeared completely—on gross inspection twenty-four hours after the application.

THE AUSCULTOPECTRUM.

A Combined Stethoscope and Percussion Hammer.

By LOUIS KOLIPINSKI, M. D.,*

Washington, D. C.

The writer has always borne a personal dislike and aversion to immediate percussion and auscultation. In tapping the naked body with the finger through a finger applied to the surface, the sound or note is not very clear, and the shades of resonance which can be distinguished are brought out at the cost of much effort and skill. Tapping with the finger is prone to become irksome and painful to the operator. The method in practice is neither elegant nor cleanly.

Auscultation of the exposed body of the sick is inconvenient to the subject, more so to the practitioner. There is no position which the listener can assume which is free and unconstrained, as the application of the head directly to the area of corporal sound is burdensome to the patient, unpleasant to a woman, and alarming to a child. The task is inconvenient while the examinee is sitting or standing, much more so when the examiner approaches the bedside. Bending over, kneeling, and stooping are not postures of freedom for the physician's respiration or cerebral circulation. To these can be added still more weighty objections than inelegance and inconvenience; it is an uncleanly and unsanitary practice.

The stethoscope offers a better means of auscultation than the direct application to the diseased body of the ear and head. Constant practice can make the simple model of Laennec, the monaural stethoscope an accurate instrument for the listener, while the model of Cammack, the binaural stethoscope, both isolates local sounds and intensifies them.

These varieties of stethoscope have each a number of faults and objections. The monaural, a rigid column or tube a foot or less in length, is too short to allow the examiner to take an easy posture of standing, bending, or sitting. Undue pressure upon it causes pain or oppressed breathing in the patient. It cannot be well used in the axillary region or in the supraclavicular triangle. The ear of the listener must approach too close to the patient's body. The instrument is too light, fragile, and top heavy. The funnel end is often too large in comparison with the stem and ear piece.

The binaural stethoscope frightens children. It magnifies extraneous sounds of clothing, bedding, and surrounding bodies. It has a shelllike hum of its own. It is inconvenient to fit into the auditory canals of the auscultator and often painful. Frequently it is not easily applied or held evenly to the auscultated surface. It is inconvenient in size and shape for carriage. It shuts out all extraneous, all air conducted sounds.

A single ear instrument, *ceteris paribus*, is better than the instrument for both ears, for by not shutting out extraneous impulses it allows the simultaneous use of the ears for incidental sounds. It must not be rigid or short, but on the contrary, while in use permit the auscultator free carriage and

*Dr. Louis Kolipinski died at Washington, Tuesday, December 2, 1914, aged thirty-five years.

motion of his body, free use of his eyes, hands, and the nonoccluded ear.

The conception of the instrument, the auscultopectrum, about to be described, occurred by accident. One day in the sick room of a young lady, the writer's attention was attracted to a speaking trumpet of unusual design lying upon a bureau. It consisted of a vulcanite, funnel shaped end to receive the voice of the speaker, four feet of black rubber tubing, and a small vulcanite ear piece bent at right angles near its free, rounded extremity. It had been named by the inventor, the tubeophone.

While the young lady was recounting the great benefit and comfort her mother found from its use, how superior it was for clear and distinct hearing to an expensive electric apparatus for the same purpose, which was always getting out of order, the thought occurred that the tubeophone might be useful to hear the sounds of the viscera in health and disease, and that combined with a percussion hammer, it could be converted into a double instrument for both auscultation and percussion, the very implement for physical examination.



FIG.—Doctor Kolipinski's auscultopectrum.

The auscultopectrum was therefore constructed as follows: The funnel end consists of an Otis urethroscope, size 25 or 26 French scale, with the obturator removed, heavily gold plated; forty-one inches or 104 cm. of red or black rubber tubing, five mm. in diameter; an ear piece, a small, acorn shaped piece of hard rubber, such as is used in a phonendoscope or binaural stethoscope. The length of whole instrument is forty-five inches.

The word proposed for this instrument consists of two Latin words of Greek origin, *auscultare*, to listen closely, and *plectrum*, a hammer or quill used to strike the stringed instruments in classical times. *Plectrum* is a better word in sound and sense than *plexor*, *pleссор*, or percussion hammer, words found only in modern medicine. In Latin two other substantives have the same or similar meaning as the one adopted; *pecten* and *pulsator*, but neither of these sounds as well as the first.

The auscultopectrum is carried about most conveniently in a silk bag closed with a double purse string tape or cord. The bag also contains two or three eight ounce velvet corks. A cork is the pleximeter with its narrower end applied to the body. The base of the cork is tapped with the plectrum. This is held by the fingers at its insertion into the rubber tubing, so that the metal tube is allowed a free elastic swing; the hand not being in direct contact with it. When percussing, the rubber tubing is hung about the neck.

The auscultopectrum is very light and in its silk bag is conveniently carried in an outer coat pocket. The rim of the funnel end of the Otis urethroscope

is sometimes found rounded, sometimes left sharp, so that this latter edge causes a deep furrow when pressed upon the skin. A piece of copper wire soldered around gives the necessary bluntness and protection. The auscultopectrum can be used by any physician without much practice and its usefulness is speedily apparent. To test its clearness and accuracy, the following simple experiments can be made with it:

When a closed, double cased ticking watch is placed upon a table four feet from the observer, a faint distinct tick is heard seemingly about the time piece. When this sound is heard through the auscultopectrum at the given distance, it is heard with great nearness and clearness and as if coming directly from the interior mechanism. When the watch is pressed firmly against the external ear, a sound identical with that through the instrument is recognized. This test was suggested to me by Dr. A. J. Hall.

To test the plectrum, take six empty pill boxes, No. 31. They are unmarked. The first is empty, the second full of tissue paper, the third of absorbent cotton, the fourth contains a spiral of rubber tubing, the fifth is half full, the sixth quite full of table salt. With a little practice in percussing the pill boxes with cork and plectrum, the contents of the boxes can be detected.

The auscultopectrum is a good ear trumpet. The first subject upon whom the instrument was ever used was a very deaf man. After the examination the instrument reversed was applied to his ear. To his great astonishment conversation was carried on without effort on either side.

There are two other stethoscopes beside this one which use a single piece of rubber tubing as the sound conducting medium. The only similarity among them is the use of the elastic and there is a very essential difference in its length. The first instrument is Voltolini's, a hollow, flexible stethoscope described in the work on physical diagnosis by H. Eichhorst.¹ The funnel end is of fir or spruce; the earpiece is acorn shaped; the caoutchouc tube is thirty to fifty cm. in length. It is an excellent sound conductor, and Voltolini said he could hear with it thoracic sounds better than by immediate auscultation. It was praised by Gruber for accurate and distinct auscultation and is very useful in case of the physician's own deafness. The second instrument is the dermatophon of C. Hueter,² designed for the use of the surgeon in auscultating skin, bone, muscle, tendon, and bloodvessels. Hueter devised three instruments for these purposes under the varying names, dermatophon, osteophon, myophon, tendophon, and sphymophon.

These instruments have in common a perforated horn ear piece oval transversely, twelve mm. by nine mm., an elastic tube, twenty-seven cm. long and six mm. in diameter; the sound funnel covered at its base with a thin, elastic membrane and of varying diameter; the dermatophon four cm., osteophon 2.8 cm., and myophon one cm.

According to Hueter, the dermatophon allows the blood currents in the small vessels of the skin to be

¹H. Eichhorst, *Traité de diagnostic médical*, 4ième édition française, par Morfan, Bernard, Rivet, Pinard. Paris, 1912. Eichhorst's original work was not at hand.

²C. Hueter, *Grundriss der Chirurgie*, Leipzig, 1885.

heard in synchronous systolic pulsation. In inflammation it becomes louder and deeper; in blood stasis it lessens and ceases. With the myophon and tendophon are heard the muscle tone of contraction, friction, and crepitus of tendon sheath and joint surface. The myophon, when used to auscultate the arteries, may be called a sphymophon. Hueter offered the myophon as a substitute for the older stethoscope, which he thought acoustically not as serviceable.

In physical examination much depends on practice and habit. If the value of the auscultoplectrum is to be judged in this manner as to its usefulness, it will become indispensable to physicians who have used it long enough to apply it quickly and skillfully.

In auscultating and percussing the thorax, it is essential that the part be denuded of clothing. Percussing over a towel, napkin, or other fabric gives no clear tones, and auscultating with our instrument, unless the surface is uncovered, is impossible. With the instrument the normal and abnormal respiratory sounds and murmurs are very distinctly heard, and that over so limited an area that it is not necessary to use it alternately on opposite sides for comparison. With still greater clearness and vividness can the separate and individual heart sounds and murmurs be perceived, so that the heart mechanism becomes as audible and as "near" as the experiment with the ticking watch.

There are two practical advantages among others in using the auscultoplectrum not found in any other stethoscope. When applied to an infant or frightened child, the examiner is not deterred by screams and struggles, but the subject submits in silent wonder or curiosity. In examining the heart and anterior lung surfaces of the adult female, it is but very seldom necessary to expose the breast. The sternal region alone is partly bared and the funnel end of the instrument may be placed over the aortic, the pulmonic, the tricuspid, and the mitral valves. The upper anterior chest regions and the lung apices may be readily percussed and auscultated.

In detecting morbid variations in the mitral valves and in the left ventricle, it is unnecessary to raise the mammary gland, because the sounds most audible at the heart apex in women can be heard very distinctly and clearly by applying the end of the auscultoplectrum in the axillary region of the left side. This requires no further exposure of the patient, whose left hand, elevated or placed upon her head, makes the examination all the easier.

631 I STREET, N. W.

RECTAL CLINICS IN LONDON.*

By J. F. SAPHIR, M. D.,
New York,

Visiting Surgeon for Diseases of the Rectum and Anus, People's Hospital; Chief of Clinic for Diseases of the Rectum, German Poliklinik.

I am sorry to say that the greater part of what might have been an interesting review of varied experiences at the continental clinics, I shall be compelled to keep from my readers, even as they have

been kept from me, on account of the sudden onset of the most disastrous European war, which curtailed my trip to the continent and prevented me from visiting the numerous clinics of universal repute in Germany and Austria, so pregnant with instructive and scientific material. The natural law of compensation, however, holds good here as elsewhere, and although my experiences in rectal work were confined to London clinics only, I hope that I shall be able to make these remarks of as much interest to my readers as my experiences have been of service to me.

From a proctologist's viewpoint, London stands preeminent as a pioneer in having established the first hospital in the world devoted to the treatment of rectal conditions exclusively; and the St. Mark's Hospital on City Road, founded in 1835, is even today, to the best of my knowledge, the largest rectal hospital in the world. This hospital has been at the same place for a period of eighty years, and is a landmark in the city of London, and is known by the layman as the Hospital for Fistula, and every civilian, porter, clerk, bobby, newsboy, tram or bus driver will direct you to the Fistula Hospital as easily and as readily as one may be directed to Central Park, or the Flatiron building in our own city.

This hospital is an absolutely free hospital, is supported by voluntary contributions, and patients who can afford to pay, drop as much as they can afford into the receptacles or contribution boxes, which are judiciously distributed throughout the wards, as well as in various other prominent parts of the building, for the benefit of patients, their friends, and visitors.

Mr. P. Lockhart Mummery, Mr. Aslett Baldwin, and Mr. C. Gordon Watson, are the honorary surgeons, Mr. H. Graeme Anderson and Mr. L. E. C. Norbury are the assistant surgeons. These five very able men take turns in operating in those cases, which they draw from their individual outpatient clinics.

The work done at this hospital is enormous and excellent, the patients getting daily personal after-treatment and attention from the house surgeon, Mr. Moolgavkar, who is a thorough and an able man, and extremely conscientious in his work. He is the entire house staff, does the laboratory work, history taking, examination, mounting and preserving of specimens, x ray pictures, photographs, and makes wax models of interesting specimens; takes care of the outpatient department, and sees that a suitable number of cases are brought in for daily operation to the various surgeons; treats each and every patient daily in the ward and assists at every operation, every day; and daily at 4 p. m. he finds time to serve tea in his room for the visitors and surgeons.

Contrary to our methods in America, the London surgeon does not operate until the afternoon, usually at 2 or 2.30 p. m., and invariably, when the hour of 4 or 4.30 arrives, the instinctive or habitual desire for tea comes to the fore, and surgeons, anesthetists, and visitors are invited to partake of the national beverage and participate in the time honored custom of tea and buttered bread or cake intermingled with a friendly chat and a

*Presented at the Scientific Session of the People's Hospital, October 27, 1914.

cigarette for about half an hour, when all return to the operating room and work is resumed.

All visitors, before entering the operating room, are provided with caps, gowns, and rubbers or rubber boots, but the American surgeon visiting the London hospitals is astonished when he sees the London surgeon remove his shoes, and don a pair of rubber boots before entering the operating room, while he wears his shirt and collar throughout the operation.

All London hospitals have anesthetists who are specialists and experts in their work and do not depend on their house staff to give anesthetics. I consider this an excellent thing for the patient and the hospital, and a godsend for the surgeon, who can continue with his work without worrying about the condition of his patient, knowing that he can depend upon his anesthetist to do exactly what should be done and at the proper time, in any emergency.

The results of the combined efforts of the expert anesthetist and the surgeon, work out so splendidly that I am amazed that the American surgeon has allowed his English cousin to put this safety device into practical use before him, but I firmly believe that the time is not far off, when we shall adopt the same methods here and every patient undergoing operation will be placed in the hands of a skilled anesthetist.

The London hospital wards are large and roomy. The beds are comfortable and clean, and heated by gas or furnace, rather than by steam. The buildings are old fashioned but substantial, and the keynote of everything surgical in London seems to be solidity and to be made to last.

I was very much impressed with the ingenuity of the method of lighting the operating theatre in St. Mark's Hospital, a method proposed by Mr. Mummery, and which he takes a great deal of pride in demonstrating. This consists of three powerful motor lamps or search lights of fifty candle power each regulated by means of a condenser. These lights are situated one in each corner of the ceiling at the foot of the operating room, and the third in the middle of the ceiling at the end of the head of the operating room, the three lights so focused that their concentrated focal rays are projected directly on the operating field, and in this manner obviate all shadows.

Local anesthesia, I am sorry to say, has not yet reached London, and many of the patients I have seen in the outpatient department, who were sent away with a jar of the famous "St. Mark's jelly" (the chief ingredient of which is confection of senna, and which has been used since the inception of the hospital) and who were told to come again and again, because of the long waiting list, usually 150 to 200, could have been relieved of their rectal ailments under local anesthesia in the outpatient department, by means of quinine and urea hydrochloride, especially cases of thrombotic hemorrhoids, anal fissure, skin tags, internal hemorrhoids, ulcers of the anus, rectal polypi, and some cases of fistula ani.

Cases of anal fissure or hemorrhoids are kept in the hospital for two or three weeks, while cases of fistula ani are confined to the hospital for four to

six weeks, and I have seen one case of fistula that was kept for fifteen weeks.

The results obtained at St. Mark's Hospital are excellent, but that old bugbear, the fear of incontinence following the cutting of the sphincter ani, still exists, and some patients that I have seen suffering with a fistulous tract running underneath the sphincter, were put to the inconvenience of being operated on, by the instalment plan, two or three times at intervals of three or four weeks, one tract being operated on after another had healed, so as to avoid cutting the sphincter.

The technic of these skillful surgeons at St. Mark's cannot be questioned, when one sees as many as seven to nine rectal operations most thoroughly performed in an hour, but, given a hospital of fifty beds, with a waiting list of 180 or 200, a stay in the hospital of two or three days for the average fissure or hemorrhoid case, and three to five days for fistula cases, judicious use of local anesthesia in the outpatient department would greatly relieve this congestion and enable many more suffering mortals to reap the benefits of the health giving skill of these surgeons.

In hemorrhoid operations, the ligature method stands first, and in the past year was used in 240 out of 284 cases, while twenty-seven cases were operated in by the clamp and cautery method, and in only eleven of these 284 cases was the Whitehead operation performed.

All patients are given 1/100 grain atropine or a quarter grain morphine and 1/100 grain atropine about one hour before the operation. That ancient barbarous rubber hose surrounded with a plug of iodoform gauze mesh is taboo, the sphincter muscle is not stretched to the tearing point any longer, but careful attention is given to most rigid cleansing of the rectum and anus before operation.

As I have said before, nothing but praise can be given to the work done at St. Mark's Hospital. The judgment of the surgeons is good, the technic excellent, and the relief of the patients self evident. The surgeons are courteous and polite and their hospitality is extreme.

The London surgeon does not live in the hurry and bustle of his American cousin. He lives better, gets more out of life than we do, sees more of his family and friends, and never allows anything to interfere with his afternoon tea.

I was given the opportunity at St. Mark's Hospital to see a very rare and most interesting case of the lack of tissue repair by the courtesy of Mr. Mummery. The man was about sixty-five years of age and suffering from an inoperable cancer of the rectum; he was operated upon by Mr. Mummery and a colostomy was made, and three weeks after the operation, there was no sign of healing or union of the tissues, so much so that the sutures were absorbed, and there was a prolapse of the small intestine from the wound. This is the first case of its kind that I have seen, but Mr. Mummery said that he had had a similar case a number of years ago.

The Gordon Hospital on Vauxhall Bridge Road, another hospital devoted exclusively to rectal diseases, is of more recent date, built probably ten years ago. It has a capacity of thirty to thirty-five

beds, caters to patients that can pay, is always full, and has excellent service. Mr. W. E. Miles and Mr. P. Maynard Heath do excellent rectal work at this hospital, and Mr. Miles is one of the very few rectal surgeons in London who is not afraid to cut the sphincter when necessary. This hospital as well as St. Mark's has but one house surgeon.

The Cancer Hospital, on Fulham Road, is an institution for the treatment of all kinds of cancer cases, has about 80 beds, and has as its surgeons Mr. W. E. Miles. Mr. R. H. J. Swan, and Mr. John Ryall. It was at this hospital that Mr. Miles with the aid of his excellent and painstaking pathologist, Mr. Leach, made his most wonderful strides in the study of cancer, and has been able by his abdomino-perineal operation for cancer of the rectum to come as close to perfection in effecting a cure as has yet been possible.

This is a most extensive operation, and I was very fortunate to be present at one of these operations at the hands of Mr. Miles, the day I arrived in London. He is one of the most skillful surgeons in London, is very quick and accurate, and performed this most extensive operation within an hour, complete from start to finish.

His theory is that any growth four or five inches above the anus of a whip-cord type with symptoms of mechanical obstruction is adenocarcinoma. Pain is an early symptom, the ampulla is very wide, and the growth may persist for a long time without any manifestations of great or pronounced symptoms.

Any patient who has been having a normal daily stool, suddenly becomes a sufferer with constipation, suspect carcinoma. These patients take strong aperients without effect. They are sufferers of functional inertia for two or three weeks, then have diarrhea, which is followed by surface disintegration, after which the first objective symptoms are seen. Slight bleeding is noticed, a smearing of the stools with blood. (If there is much bleeding, it is usually due to ulcerated piles or hemorrhoids.)

The bowel becomes more and more intolerant of its contents and there is a frequency of fecal movements with a tendency to persist.

Cancer of the rectum spreads laterally and downward, and when there is an infiltration of the muscular coat, there is a discharge of mucus and pus in the stools; later on a perirectal abscess forms, followed by a purulent discharge.

When the whole circumference of the bowel is involved, there is a general contraction, marked stenosis of the lumen of the rectum, and the final stage is marked by abdominal distention with pain, local pelvic pain, and pain radiating down the thighs, then marked cachexia, loss of weight, and signs of acute obstruction.

Carcinoma of the rectum is differentiated from stricture of the rectum, by absence of ulceration, induration, and bleeding in stricture of the rectum. Syphilitic ulcerative gumma is usually multiple, smooth, round and plastic. In tuberculous ulceration there is induration, but an excavated base. In these, as in all rectal cases, examination should be made digitally first, and then with a sigmoidoscope. Every part of the rectum and even the promontory of the sacrum can be reached by the examining finger.

The treatment of cancer of the rectum depends upon whether the case is operable or inoperable. If the condition of the patient is bad, a left inguinal colostomy should be made, and through a small opening a loop of the bowel should be secured with a spur.

In favorable cases for operation, the perineal method of excision as advocated by Kocher or Mummery, or the method of choice, the abdomino-perineal excision method as advocated by Mr. W. E. Miles, should be performed, and the efficiency of these operations for cancer of the rectum and value of the method as a cure depend upon the degree of immunity to recurrence that is conferred.

The operations advocated by Kraske, Zucker-Kandel, Kocher, and others are all done without regard to the theory of the spread of cancer. The old method of subsacral exposure, with narrow removal of the circumanal skin, and scanty removal of the ischio-rectal fat, the excision of the coccyx, division of the levatores ani close to the rectum,

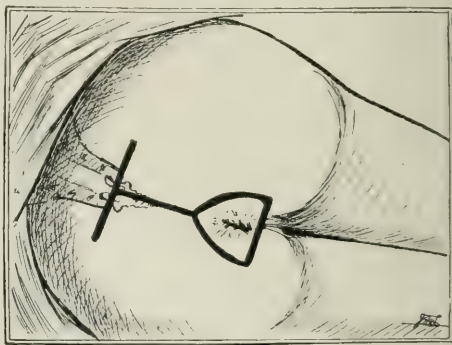


FIG.—Perineal incision for abdomino-perineal operation for cancer of the rectum.

with the removal of a section of the bowel, up to one inch above the growth, in the hands of Mr. Miles in (a) nine cases, showed a mortality of 0.0 per cent., and recurrence in 100 per cent.

This convinced Mr. Miles that for a cure one must remove extensively the tissues involved on account of the extramural spread. There are three zones of spread: 1. Downward, into the ischio-rectal fossa; 2, laterally, into the skin fat, the levatores ani to the internal iliac; 3, upward, the most important being in the pelvic mesocolon.

In fifteen cases Mr. Miles also removed (b) the ischio-rectal fat and skin, and found a mortality of 0.0 per cent.; recurrence in 93.3 per cent.; and cured, 6.7 per cent. But in these cases he did not remove the lateral or upper zone of spread, the glands.

In the next series of four cases he performed (c) resection and suture of the bowel and had recurrence, 100 per cent. In thirteen cases, he included the removal of (d) the levatores ani and the lower mesocolic glands, and also the rectum several inches above the growth and had a mortality of 7.6 per cent.; recurrence, 91.6 per cent.; and cured, 8.4 per cent. He then drew down (e)

the pelvic mesocolon and inferior mesenteric artery and in eighteen cases had a mortality of 0.0 per cent.; recurrence, 94.4 per cent.; and cured, 5.6 per cent. These are all perineal operations, but the mesocolon was left behind and the glands with it.

Mr. Miles then used (f) the abdominoperineal operation for the first time in 1906, and up to date has operated in sixty-seven cases with 55.3 per cent. of cures; thirty-seven out of sixty-seven patients remaining well to date: operative mortality, 37.3 per cent.; recurrence, 7.4 per cent.; and cure, 55.3 per cent. If there is visible spread, there is also an invisible spread along the chain of glands. Any operation that does not remove all the glands is useless. Even the abdominoanal operation is not enough, and the only logical operation is the abdominoperineal operation. This operation is advisable in all patients under sixty years of age.

The steps of the abdominoperineal operation are:

1. The patient's bowel is washed for eight or ten days previous to the operation, and an intestinal antiseptic in the form of salol is given internally before the operation. If there is stenosis with marked abdominal distention, make a temporary cecostomy, and not a colostomy.

2. Make an incision in the median line up to about one or two inches above the umbilicus, and with a self retaining retractor, withdraw the intestines and expose the pelvis, withdraw the pelvic colon, clamp and ligate the lower mesenteric artery, but leave the first loop.

3. Suture the colon on either side, and cut between the ligatures, then apply forceps on the mesentery, and with pursestring sutures, the bowel is invaginated and secured, then the inferior mesenteric artery is ligated below the first sigmoid branch.

4. Be careful to locate the left ureter and do not include it when ligating. The rest of the colon and mesocolon are divided, the peritoneum is divided forward to the sacral or Douglas pouch, and the rectum is pushed into the cellular tissue to the base of the coccyx. This is followed by blunt dissection from the bladder, to the upper part of the prostate or in the female to the upper half of the vagina.

5. Dissect to the upper border of the levatores ani and lateral ligaments of the rectum, and after isolating the bowel, the bowel is pushed into the pelvis, and the floor of the pelvis is refashioned.

6. The peritoneum is dissected up, the anterior peritoneum is drawn back to the stump of the mesocolon and sutured to the left and to the right.

7. The abdominal wound is closed, the colostomy is brought out on the left side through the rectus, and two layers of sutures are applied to close the abdominal wound, and at the last stage of the operation the colostomy is opened.

8. The patient is now turned over on his side, supported with sand bags, the anus is closed with a pursestring suture to prevent leakage, the coccyx is removed at the sacrococcygeal junction, the fascia is separated, and the entire bowel is taken out of this perineal wound after the levatores ani are separated.

9. The transverse and longitudinal incisions are closed and protective rubber tissue is pushed into

the wound and the cavity is packed with sterile gauze to support the newly formed pelvic floor from below.

10. This packing is kept in for thirty-six to forty-eight hours, and is changed daily, and the cavity is syringed out twice a day. After the third week, the patient gets up, and after the fifth week, the patient goes home.

I have seen some of these patients who were perfectly well and gaining weight, who had been operated upon seven and eight years ago, and have also seen the specimens of the resected gut right alongside of the now well and healthy patient, and wonderfully preserved in gelatin by Mr. Leach, so that the tissues retained their natural color. I have seen cases operated in by the abdominoperineal method at the cancer hospital by Mr. Miles, and Mr. Swan, at St. Mark's Hospital by Mr. Mumfery, and at the West London Hospital by Mr. Baldwin. The many cases followed by the excellent results at the hands of so many men, should prove that the abdominoperineal operation is the only rational method of cure for cancer of the rectum.

To be in London, and not to see Sir Arbuthnot Lane, is considered among the medical fraternity as great an offence as to have been in Rome and not to have seen the Pope.

In the famous Guy's Hospital, on St. Thomas street, near the old London Bridge, almost any afternoon, work of interest for the surgeon can be seen, and during the week that the surgical congress was held in London, Sir Arbuthnot Lane held clinics morning and afternoon, to enable the 1,500 surgeons of North America who visited London, to see his excellent bone work and his famous short circuiting bowel operations for intestinal stasis.

In cases of marked intestinal stasis especially seen in nervous, run down women, suffering from constipation and staining of the skin, he performs his short circuiting operation or ileosigmoidostomy, and in cases with a sagging colon, he performs a colectomy.

As a technician, Sir Arbuthnot Lane reigns supreme, and one is very much impressed on seeing him sit down on a high stool alongside the operating table, on the left side of the patient, and in a very calm, precise, accurate, and businesslike manner open the abdomen from just above the pubes to the ensiform, and in conjunction with his able assistant, clamp, tie and cut, clamp, tie and cut, almost automatically, remove the lower end of the ileum, and the cecum, ascending, transverse, and descending colon, and make an anastomosis between the ileum and the sigmoid; then in just as automatic a manner, another assistant inserts a tube into the rectum, and allows an antiseptic solution to flow into the gut, to see that there is no leakage. The abdominal wound is closed and, the operation is over before one really is able to realize the boldness and extent of the operation. During the entire time the patient receives saline hypodermoclysis in both axillae, simultaneously.

Sir Arbuthnot Lane is most thoroughly convinced that colectomy and his short circuiting operation will do all he asserts in their favor, and by his very presence, his wonderful technic and personal mag-

netism, and his absolute sincerity in his belief, I have no doubt that he will ultimately be able to convince the medical fraternity that his theories are correct.

When he speaks of intestinal stasis, he is so thoroughly saturated with his belief in the benefits to be derived by suffering humanity from his colectomy and ileosigmoidostomy operation, that his face lights up, his eyes begin to sparkle, and he speaks with a sort of religious fervor as if he was inspired; and this, in conjunction with his wonderful personality and personal hypnotic magnetism, sends one away from his clinic much impressed with the idea that he has basked in the sunshine of a very wonderful man, even though he may not have become converted and still has some differences in opinion.

Lane believes that gastric and duodenal ulcer and cholelithiasis can be cured by his colectomy operation. He relieves rheumatoid arthritis, tuberculosis, and exophthalmic goitre and melancholia, and by colectomy he also prevents cancer, and what is more, he shows patients who have been relieved by operation.

The medical fraternity have been slow in accepting his theories, but Lane continues his short circuiting and colectomy operations, and does them as no one else can do them, and gets results, and his belief is, that if his views are correct they must triumph, and if otherwise, they will not survive.

I most thoroughly enjoyed the work, the conscientiousness, and the thoroughness of the London surgeons. They are honest and sincere in their work, and extremely hospitable to surgeons visiting their clinics, their homes, their city. They take their time about things and live better and more comfortably than we do and without any hustle or bustle, but they "get there just the same." They do not work as hard, but they manage to get more out of life than we do. They are genial and kind, polite and hospitable, and I take this means of extending my appreciation to the London surgeons for their many generous courtesies extended to me.

237 WEST SEVENTY-FOURTH STREET.

BALANTIDIUM COLI,

By A. J. HINKELMANN,
Galesburg, Ill.

The question of *Balantidium coli* has received a great deal of attention during the past few years; but so far its real place in pathology, as well as its life history, are far from definitely settled. There are those who maintain that it has no clinical significance, although frequently found associated with various forms of severe intestinal catarrh and dysenteric conditions, and there are others who maintain that it is the real cause of these conditions.

An excellent article appeared in the *Journal A. M. A.* for December 2, 1911, by Fred B. Bowman, M. B., in which he ably set forth a number of findings in regard to the pathogenesis of the parasite, and concluded that it does not live in the intestines in a state of harmless commensalism.

Being situated in a community in which it is becoming more and more evident every day that a

very large percentage of the total population has become infected with this parasite, I feel myself in a position to bring the whole question of *Balantidium coli* into greater light. Without referring further to what already has been worked out, I will report the findings of the laboratory at Galesburg, Ill., which constitute the work done in this direction for a period during the present season by myself, Dr. Clyde A. Finley and Dr. William O'R. Bradley, of Galesburg, and Dr. L. W. Bremerman, of Chicago.

Seat of infection. The parasite has been properly named *Balantidium coli*, for it is plain among persons infected that the colon is the harboring place in the body in which it thrives best. The colon, however, is far from being the only place that becomes infested when the organism once gains an entrance, and especially do I want to emphasize the finding of *Balantidium coli* in the urine, something of which I have been unable to find any previous record. That it enters the urinary tract, however, readily, is evident by the fact that during the period I have been observing the organism this season, it has been a constant finding in all the urine that has come to the laboratory. While the majority contained only an occasional parasite, there were those in which it was present in large numbers. In one particular case, in freshly voided urine, I encountered as many as from five to fifteen actively motile parasites to the low power field of the microscope.

In specimens of urine, the organism may also best be studied through its various stages of development, owing to the fact that free in the urine it becomes less distorted by surrounding physical influences, and retains well all its characteristic features. In the mature state it is actively motile and can be seen with cilia or flagella surrounding the entire body, which the parasite moves very rapidly in a circular direction and by means of which it propels itself forward. It has the longest cilia at the body elongations. Those at the side appear often to have been broken off, leaving those at the elongations intact. In shape it varies very much. In the urine, it is most usually somewhat elongated and oyster shaped; but it may also be oval, spherical, and at times the shape of a peach stone. Perfect mounts of the organism, showing its flagella and all the characteristic features of its protoplasm, I have succeeded in getting by staining it while still in the urine in the bottom of a centrifuge tube and then spreading the sediment out on a slide and letting it dry.

Life history, reproduction and dissemination in the body. Through a careful observation of the life cycle of the parasite, I find that it is an organism that reproduces by segmentation, somewhat analogous to the method of the malaria parasite. From a study of the organism from day to day in the urine of an individual, it appears to reach maturity in about a week, when segmentation begins in the protoplasm of the organism; eventually it becomes entirely broken up into tiny particles, which are shed; each particle is a young parasite, which immediately starts through the same cycle which the mother has just finished. It differs, however, from the malaria parasite in the fact that it leaves a sort of a basement membrane or skeletal

organism, in the end upon which it may be seen to have formerly rested.

It has been maintained in the past that it also reproduces by budding. This I find is not the case; but the idea evidently originated in this way. Many stages of development are always present at the same time; the organisms have a great tendency to cohere and gather into groups, and the larger organism often picks up a smaller one and as growth continues in the same proportion, by the time the larger organism approaches maturity, it makes it appear as though a smaller one was budding out from it.

It is very evident that it is disseminated in the body through the circulation, first, because of the fact that the products of final segmentation of the mature organism may be found free in the blood of those infected. Furthermore, the entrance of the organism into the genitourinary tract, in itself, makes dissemination through the circulation almost conclusive. How could an organism of the size of *Balantidium coli* otherwise get into the bladder as readily and in such numbers as it frequently does?

Pathogenesis. This is a problem in which it is very hard to reach a definite conclusion. The reproduction of the organism is enormous, and as the blood takes up the young bodies of segmentation, as I have found to be the case when infection has once taken place, it is not to be wondered at that the organism may be found in various places remote from the principal seat of infection; yet this does not answer the question, whether pathological conditions already present only furnish a lodging place for the parasite, or whether it has really caused the diseased condition. This much I have been able to determine, however; the young bodies of segmentation do not grow to maturity in the blood; but judging from the typical lesions of the bloodvessels pointed out by Bowman, and the finding of the mature parasite in these lesions, it is evident that it may easily become deposited where the blood ceases to exercise its apparent influence, and it then becomes a primary cause of disease. Its entering the circulation in this manner evidently also accounts for such lesions as emboli in distant organs, as spoken of by Emerson in his textbook of clinical diagnosis.

Wherever the organism has located and appears to have become a serious factor, the pathology seems to be distinct in itself. While it simulates conditions that we often find caused otherwise, there is something in the severity of the process that makes it different. In a case of nephritis from which I have repeatedly examined the urine, it shows marked destruction of the kidney parenchyma, judging from the large number of granular and waxy casts continually present. The same destructive process is seen in cases where it seems to have located especially in the bladder or in the urethra. It is hard to find anything to which to attribute this unusual condition except the parasite.

Again there are cases where I have found the organism in the urine, but the patients complained of no clinical symptoms; all of these urines are after all not normal. Associated with the parasite is always an abnormal number of leucocytes and epi-

thelial cells from various parts of the urinary tract; in general a picture that points to a mild inflammatory process at least.

The blood picture. With but one or two exceptions, all patients in whom I have made blood counts, both those actually suffering and those carrying the organism without showing symptoms from it, manifest the same blood changes. There is a leucocytosis of about 9,000 to 12,000, due to an increase in the large lymphocytes. Only in cases associated with other infections is there any increase in the number of polymorphonuclear leucocytes. The red count is unchanged.

Furthermore, I have observed in strangers coming into this locality where *Balantidium coli* is prevalent, the organism does in some cases produce a mild form of urethritis, cystitis, and frequent and abundant urination; as well as a mild form of intestinal disturbance.

CONCLUSION.

The more extensive pathogenesis of the organism, as well as the clinical side of the question, is still being studied by Doctor Finley and Doctor Bradley here, and by Doctor Bremerman, of Chicago, and will be reported later. It is plain, however, in the light of the large number of cases of infection here, that *Balantidium coli* is an agent of no little clinical significance.

In the first place, when it enters the system, it sets up a condition that, in varying degrees, calls upon the protective powers of the body, which is seen by the almost typical blood picture in both the so called cured cases and in those still active.

It is also evident that where pathological conditions are already present, or the normal protective power of the system has become lessened, its consequences increase in proportion to the severity of the disease; it produces a sort of added fire to everything that produces disease otherwise. I have been able to gather the reports of a great number of cases of mild intestinal disturbance. I can find no record of any of the severer forms of dysenteric conditions usually mentioned in connection with the parasite; but from reports elsewhere, it is evident that geographical locations have something to do with this, and that in places where diarrhea and dysenteric conditions are more common through other causes, the *Balantidium* exercises the same pathological influence in the colon as in other places.

Being capable of exciting a mild state of inflammation in a well person, to begin with, and apparently ever present in the body after it has once entered, it also becomes an agent that stands ever ready to work hand in hand with the organisms of other infections, such as the colon bacillus, staphylococcus, and other organisms ready to invade the tissues.

Source of infection. In the light of the wide spread of the infection, logically the source seems to be one with which people come a great deal in contact. Analysis of the city water, which comes from an open reservoir into which the water is pumped from a well, shows the presence of a parasite of the same morphology, general behavior, and characteristics as the *Balantidium* we have found in so many places in the body in connection with disease.

TREATMENT.

Heretofore, the treatment evidently has been directed toward eradicating the parasite from the colon through local means only. Considering, however, the systemic condition present wherever the *Balantidium* becomes a factor, it can be understood how useless it would be to try to eradicate the organism by unaided local measures. Some constitutional treatment will have to be adopted, and this is still a matter for experiment.

151 MAIN STREET.

ETHER INSUFFLATION ANESTHESIA.*

BY JOHN H. EVANS, M. D.,
Buffalo, N. Y.

I wish to present briefly for consideration two comparatively new vapor methods for the administration of ether, namely the intratracheal and the intrapharyngeal.

In the preparation of this paper I am indebted to Doctor Elsberg, Doctor Connell, and Doctor Boothby, from whose writings I have drawn.

Let us first consider

INTRATRACHEAL INSUFFLATION.

In 1909 Meltzer and Auer first published the results of their experiments whereby they had successfully anesthetized a large number of animals by forcing ether vapor deeply into the trachea by means of a tube introduced through the larynx and to which they applied the term "intratracheal insufflation."

The following year Doctor Elsberg of New York devised an improved apparatus and was the first to use intratracheal insufflation anesthesia on human beings. His example was soon followed by other surgeons in the United States and elsewhere.

Doctor Elsberg's apparatus consists of a source of air supply either by means of an electric blower or a foot-pump; a system of tubes connected with an ether reservoir and a mercury manometer; a water tank by means of which the air stream can be warmed and moistened, and his newer apparatus has in addition an automatic blow-off to prevent too great pressure in the lungs. Ether is the safest anesthetic to use since the dose for chloroform has not been sufficiently well worked out. Nitrous oxide and oxygen have been used in some cases, but up to the present ether is the anesthetic of choice for intratracheal insufflation.

The intratracheal catheter, which for an adult should be about the size of 23 F. and of sufficient hardness not to be easily compressed, is introduced into the trachea by means of the Jackson direct laryngoscope after the patient has first been anesthetized by any of the face mask methods so that both pharyngeal and laryngeal reflexes have been abolished. The catheter is then pushed down until the eyelet is about two inches above the bifurcation of the trachea. In the adult this is about ten inches from the incisor teeth. The free end of the catheter is then connected with the rubber tubing carrying the etherized air and a pressure of from

15 to 20 m. m. of mercury maintained. The air current should be interrupted occasionally to permit of physiological collapse of the lungs.

The Elsberg apparatus used at the Buffalo General Hospital was one of the first made. It has no safety valve. We have, however, so arranged it that when the mercury in the manometer reaches any given point a bell rings and warns us of increasing pressure.

Intratracheal insufflation anesthesia possesses many advantages over the ordinary methods. By it the so called "death space" represented by the lips, nose, mouth, cheeks, tongue, pharynx, glottis and epiglottis is eliminated.

This is an important factor for it is quite probable that as many, if not more, deaths result from obstruction to a free airway with its consequent interference with the circulation between the right and left heart, than from overdose of the anesthetic agent. The intratracheal method delivers air beyond the usual sources of obstruction "directly into the trachea and larger bronchi, driving out the vitiated air by the force of the returning air stream which escapes between the catheter and walls of the trachea." (Elsberg.)

With ordinary mask methods it is common to have more or less obstruction especially in prolonged anesthetics and where this is at all marked it is easy to conceive of negative pressure in the lungs working internally in the same manner as does cupping externally, producing a bulging of tissue with consequent congestion.

"The escape of air from the end of the catheter creates air currents in the bronchi which greatly aid diffusion. Therefore it is easy to supply the patient with as much oxygen as he needs and also to remove all the excreted CO_2 ." (Boothby.)

"The patients are quiet; their musculature is relaxed and there is complete absence of mucus rattling in the throat during the entire period of the insufflation." (Elsberg.) The danger of a fatality occurring from the so called mucus inundation is eliminated.

In intrathoracic surgery it prevents collapse of the lungs.

"In operations where there is hemorrhage in the mouth, the force of the returning air stream keeps the blood from entering the trachea. Packing the pharynx is unnecessary." (Elsberg.)

In any operation about the head and neck the intratracheal method permits of the anesthetist being out of the operative field.

It is of value in cases of intestinal obstruction where there is danger of the patient drowning by inspiring the fluid, should it be regurgitated from the stomach and intestines. In these cases the stomach should first be washed out before starting the anesthetic in order to avoid, if possible, regurgitation before the introduction of the intratracheal catheter.

In prolonged operations upon cachectic patients it provides for them a free and easy means of respiration whereby their energies are conserved, as this method makes no extra demands upon the circulation or muscles of respiration.

If, for any reason the normal mechanism of external respiration fails, we have one of the most ef-

*Read before the Buffalo Academy of Medicine, October 25, 1910.

ficient means of artificial respiration at hand and in situ. Doctor Elsberg has reported that in several instances patients have been kept alive, particularly when suffering from opium poisoning or from drowning for three, four, six and seven hours, although during this time not a single respiratory movement was made, the color of the patient remaining pink, showing that the blood was well oxygenated.

In any operation where the patient must lie on the abdomen or in any position where the free expansion of the lungs is interfered with, the intratracheal is not only the best method of anesthesia, but is almost a necessity.

I have given intratracheal insufflation for the following operative procedures: Craniotomies, thyroidectomies, excision tuberculous nodes of the neck, fractured cervical vertebrae, removal superior maxilla, extensive resection of the ribs, breast amputation, Albee operation, carcinoma of the lip, wry neck, cleft palate, carcinoma of the jaw, laminectomy and esophagotomy.

There was one death but I cannot attribute it to the anesthetic. It was a case of extensive fracture of the cervical vertebrae with complete paralysis of all the muscles from the head down. Death was probably due to injury to the vital centres in the medulla, for the patient received practically no anesthetic during the last forty minutes of the operation and the intrapulmonary pressure was at all times within the range of safety.

We had two cases of laryngitis which promptly cleared up. This, I think, was caused from the use of formaldehyde solution in the sterilization of the catheters. Since using five per cent. carbolic acid we have had no further trouble.

To my knowledge three deaths have been reported by other anesthetists, but in each case the fatality was due to a faulty technic and a lack of sufficient care in checking up important points. Two were from excessive pressure within the lungs producing emphysema and rupture of lung tissue. In one of these cases a soft rubber catheter was pushed down until it completely filled one of the branches of a bronchus, allowing no air to escape. The third case was where the catheter was introduced by mistake into the esophagus, death resulting before the operation was begun, probably from interference with heart action from an overdistended stomach.

Upon introducing the catheter usually one can hear the air rush in and out through the catheter during inspiration and expiration respectively, but if there should be any doubt, the end of the catheter placed under water at the beginning of expiration will soon settle the question. If at the end of two or three successive expirations air is seen to bubble through the water one can be sure that the catheter is in the trachea and not in the esophagus.

One should not attempt to give an intratracheal anesthetic unless he is familiar with the apparatus he is using.

"The question of providing a free return of air through the larynx and mouth must be considered. The tongue is apt to fall back and offer enough resistance to direct some of the air down the esophagus into the stomach. A more serious question is

that of spasm of the glottis in which the vocal cords shut down more or less tightly on the catheter. The spasm of the glottis occurs only when the patient is in light anesthesia and the administration of more ether soon brings about relaxation of the cords." (Boothby.)

"Toward the close of the operation it is advisable to insufflate pure air for a few minutes to blow out the anesthetic agent from the lungs and trachea. Then the patients awoken very quickly, often answering questions before leaving the operating room. Vomiting is quite uncommon after intratracheal anesthesia." (Elsberg.)

The chief disadvantage of this means of anesthesia as a routine in all cases is the occasional difficulty and delay in the introduction of the intratracheal catheter. Even in the hands of the most expert it is sometimes very difficult in some subjects to successfully expose the glottis and place the catheter.

In cases where the direct method of introduction fails the method of palpation, using the finger as a guide often proves successful. However, in my somewhat limited number of cases I have never failed so far in placing the catheter by means of the Jackson direct laryngoscope.

The intrapharyngeal method of insufflation is a modification of the intratracheal, and was developed in 1911. This method was devised by Dr. Karl Connell, also of New York, as a result of his search for a method of anesthesia that would retain the most desirable features of the intratracheal, and at the same time do away with the difficulty and delay which so often accompany the introduction of the intratracheal catheter.

In intrapharyngeal insufflation the air and ether vapor are delivered deeply into the pharynx.

Doctor Connell devised an improved apparatus in his invention of the anesthesiometer by which the exact quantity of air delivered to the patient and the exact percentage of ether in that air is known and regulated. Time does not permit of a description of this very ingenious apparatus which in my opinion marks the greatest advance in the administration of ether since Morton introduced ether to the surgical world sixty-eight years ago.

During the summer I saw one of these in operation at the Roosevelt Hospital in New York and another at the Peter Bent Brigham Hospital in Boston. I familiarized myself with its workings and observed its application clinically in several cases.

I was very favorably impressed with the intrapharyngeal method as well as with the accuracy in dose which the Connell anesthesiometer supplies.

The Elsberg apparatus can be used for either intratracheal or intrapharyngeal insufflation, as can the Connell apparatus, the same percentage of ether being used in either method.

In the intrapharyngeal method the delivery is accomplished by preference through two soft rubber catheters, size 18 F, inserted, one through each nostril, a distance in the average of five inches in the adult.

"A sufficient quantity of air should be delivered to supply the full requirement of each inspiration without extraneous dilution." (Connell.)

"Of the total vapor delivered less than half is

utilized to maintain a constant intrapulmonary ether percentage by being inspired; the remainder is wasted through the expiratory and apneic periods, doing work only to clear the upper air passages." (Connell.)

"The intrapharyngeal is not so effectual in control over aeration or over positive pressure as is the intratracheal. However, by holding the nose and lips of the patient and by pressure of the larynx against the esophagus so as to prevent escape of air down into the stomach, intrapulmonary pressure may be increased five to twenty-five millimeters as shown by the manometer. At about ten mm. the excess of air blows out unless the lips are held very tightly. Greater pressure is unnecessary since five mm. pressure is all that is required to prevent collapse of the lungs during intrathoracic operations." (Connell.)

This method eliminates the so-called "death space" with the exception of that represented by the glottis and epiglottis. However, it is usually during primary anesthesia before insufflation methods are permissible that obstruction to respiration occurs from spasm of the glottis.

In operations where blood escapes into the mouth the intrapharyngeal is not so reliable as the intratracheal in keeping the trachea free from blood, but if the tubes are kept at their proper depth in the pharynx it answers the purpose very well.

In most cases, too, the patients can be kept in surgical anesthesia even though the mouth is wide open, as is necessary in such operations as tonsillectomies, cleft palate operations and resections of the jaw. Complete relaxation should be obtained before the change is made from the face mask to the insufflation method.

In cases of excessive flow of mucus it overcomes obstruction to a free air way from this cause.

In this connection I wish to cite a recent case in which I anesthetized a boy of six years for the purpose of reduction of a fracture of the femur and application of plaster of Paris cast.

The anesthetic was ether given by the drop method. The patient had barely reached the stage of surgical anesthesia before there was such a hypersecretion of mucus that he became very cyanotic. The anesthetic was withheld but normal color did not return until half an hour later. A week afterward an open operation was decided upon.

I again administered ether by the drop method until I saw that the patient was becoming cyanotic from mucus obstruction when I instituted intrapharyngeal insufflation which I had in readiness. The mucus promptly disappeared and the color became a bright pink, which continued during the forty minutes following, before the completion of the operation.

"The patients sleep the same quiet sleep that marks intratracheal anesthesia." (Connell.)

"The jaw or head rarely have to be adjusted and may be twisted into positions which in ordinary mask methods would obstruct respiration, although not to the extent that may be done in intratracheal insufflation; the absence of the so called operative shock is notable as with the intratracheal." (Connell.)

"In the routine insufflation the insufflated air is

allowed to escape freely by nose and mouth. If air be swallowed or insufflated into the stomach the patients do not breathe smoothly and higher percentages of ether become necessary to secure relaxation. The stomach does not become inflated with air unless one of two errors is made. The first is to begin insufflation before the swallowing reflex is abolished. The second is to pass the tubes into the esophagus. The tubes should never be passed further than the following measurements: Mark off on the catheters the distance from the ala of nose to the corresponding auditory meatus of that individual and insert the catheters only to that measurement, which will carry them behind the epiglottis but not into the grip of the esophagus. On the other hand, if the tubes be not passed into the lower pharynx the air supply is not freely available for respiration." (Connell.)

"For a few minutes after introduction of the tubes it is well to hold the mouth closed and the jaw forward as one does with a face inhaler. Soon, however, the stertor of the usual anesthesia quiets to a natural unobstructed respiration and the jaw can be neglected." (Connell.)

One objection to an electric blower as a source of air supply is the noise of the motor, but this can be eliminated by a compressed air plant placed in the basement or elsewhere and the air piped to the operating room. This has been done in both the Roosevelt and Brigham Hospitals, thus securing a noiseless but constant and reliable air supply.

Time does not permit of a more exhaustive consideration of the subject.

In conclusion I wish to briefly emphasize a few of the more important advantages obtained from insufflation anesthesia. They are threefold: first, to the patient; second, to the surgeon, and third, to the anesthetist.

For the patient it insures an unobstructed airway, plenty of oxygen, a free circulation of blood through the lungs, a more speedy recovery from the anesthetic, fewer disagreeable symptoms afterward, and practical immunity from postoperative lung complications. In operations in or about the mouth the patient is on the operating table a much shorter period of time, for the operation is not delayed by the administration of the anesthetic.

For the surgeon it supplies a certain sense of security as to the safety of the patient; gives him a more uniform anesthesia for the carrying on of his work; is of value to him in intrathoracic surgery by preventing collapse of the lungs; is a time saver in any operation where in face mask methods he is compelled to frequently surrender the field of operation to the anesthetist; insures for him a better asepsis and enables him better to concentrate his attention upon the operative procedure; and because of the results obtained surrounds him with a more grateful class of patients.

For the anesthetist it obviates the necessity of constantly struggling with the jaw to keep it pushed forward, which with vigorous subjects or with those in whom the tongue nearly fills the pharynx, is no small consideration. It lessens the fear that possibly too large a dose is being given; gives him more opportunity to better watch the pulse, color and respirations of the patient and note more minute-

ly the slightest variations in the patient's condition; does away with the necessity of guarding against the dropping of ether into the eyes and against the production of an ether blister by saturated face pads; liberates him from feeling that he is a hindrance in face or mouth operations by being obliged so often to monopolize the field of operation; frees him of the fear that he is possibly infecting the patient by unsterile hands or mask. In short it makes his work more agreeable and gives him the satisfaction that he has rendered better service to both patient and surgeon.

THE HISTORY OF MEDICAL ETHICS.

BY GEORGE WYTHE COOK, M. D., LL. D.,

Washington, D. C.

(Concluded from page 146.)

In 1518—the tenth year of King Henry VIII—Thomas Linacre founded the College of Physicians of London, in order that its members by constant association might be improved in learning, in the practice of medicine, and in the morals of their profession. The statutes of the college ordained for the government of its members are explicit and emphatic. They not only declare what shall be the demeanor of its members, but they prescribe that they shall “be clothed with gown and other decent apparel” when in attendance upon “all great meetings, Feasts of the Collegues, Funerals, and Anatomical administrations” under penalty of a fine if delinquent.

Because by honest meetings mutual love is maintained, and the minds of studious men recreated. We will that all who have been admitted into the Society of the College entertain the President and all the Fellows in Town, at a frugal, honest, and sufficient Feast, and that at a time first appointed by the President.

But if at any time it shall happen, that he whose duty it is to provide a Feast, can not conveniently perform it, and therefore for some just and honest cause to be approved by the President and greater part of the Society, he shall desire of the Society to be kindly released from this Law, and freed from that charge; we leave the whole matter to be moderated at the discretion of the President and Society.

Yet whatever Collegue shall obtain this favour, that he be released from providing a Feast, he shall pay to the use of the College Ten or Twenty Pounds, according as it shall seem reasonable to the President and greater part of the Fellows.

Let none reveal or divulge anything of any moment that is said in the College, under the penalty of Ten shillings.

No Collegue shall by name accuse another either of ignorance or ill practice, or any villany, or ignominious crime, or publicly reproach any of the College (under a penalty of four pounds). The second the mulct shall be doubled, but if any shall offend the third time he shall be expelled from the College.

The Fellows of the College are enjoined to use the greatest circumspection in consultations and under all circumstances jealously to guard the reputation of a colleague.

Historians generally consider the promulgation in 1532 A. D. of the Criminal Constitution of Charles V, otherwise termed the Caroline Constitution, as the earliest test of forensic medicine in Europe. Article 35 of this Code is as follows:

If a girl is suspected of having been delivered of a child in secret and to have killed this child, one should in the first place ascertain if she had been seen in a very

apparent condition of pregnancy, and if this pregnancy having diminished, whether or not she became pale and weak. If these kinds of signs and indications are met with and the woman is such that she may be suspected, it is proper to proceed still further and have her secretly examined in private by reliable and experienced matrons. If this examination confirms the suspicion, and she, nevertheless, will not declare the crime, she may be put to torture.

If all these conditions, and in addition the body of a dead fetus were present, it would not be proof that the girl had killed the child, for it might have been stillborn.

In 1667 a new fact, a most important medicolegal finding in cases of suspected infanticide, the hydrostatic test of fetal lungs, wherein it was demonstrated that after respiration had once taken place the lungs would float in water, was discovered by Swammerdam. Had this fact been known at the time of the proclamation of the Caroline Constitution, it might have saved some from being “put to the torture.”

The first practical application of this fact, however, did not occur until a century and a half after its discovery. In 1681, in the case of a peasant maid of about fifteen years of age who was accused of infanticide, Joh. Schreyer, a physician of Zeitz, demonstrated that the child had not breathed because the lungs sank, thus acquitting the girl of the charge.

Cangiamila, of Milan, in 1751 wrote interestingly on sacred embryology. The Hippocratic oath and all codes of ethics are pronounced against criminal abortion and the religiomedical controversy over craniotomy on the living fetus has waxed warm from time immemorial; the accoucheur holding that it were better to sacrifice one than lose both. But with the fine advances in the obstetric art today, there can no longer be any doubt as to the correct procedure.

The physician was and is necessarily relied upon by the governmental authorities in medicolegal cases and the great medical men in all ages in the nobleness of their characters have appreciated and respected the responsibility placed upon them. Thus Ambroise Paré, writing in the sixteenth century, says: “The foremost and principal quality for the surgeon is that he shall have a pure soul, fearing God, and never representing a small wound as a large one nor vice versa, because the jurisconsult will be guided in their decision by the report.”

It is to be regretted that the medical expert of today is not held in very high esteem, for it is alleged that his testimony is warped in the direction whence cometh the fee.

From what has preceded it will be observed that medical ethics and forensic medicine were still classed together and in the nature of things were governed by legal enactment, but after the seventeenth century, as medical organizations became more numerous and medical periodicals were more disseminated and the healing art was developing more into a science, the exigencies of the times made differentiation necessary and there arose a need for local codes of medical ethics.

There are some interesting old volumes in the surgeon general's library which deal with the duties and difficulties of the medical man. Notably the *Medicus-politicus*, by R. à Castro (1662), another

volume with the same title by Friedrich Hoffmann (1738), and one entitled *Medicus-peccans*, by Ahasuerus Fritschius (1684).

About the end of the eighteenth century, according to Jacobi, "Johannes Peter Frank was so disgusted with the behavior of doctors when they met in consultations as to advise the calling in of the police on all such occasions." In 1799, according to Cordell, the Medical and Chirurgical Faculty of Maryland authorized its president to fine any member guilty of disorderly conduct at its meetings, to the extent of ten dollars, and to eject him, if his conduct was offensive enough to warrant such an extremity.

It is a well settled principle of modern medical ethics that a physician should hold inviolate the confidences of his patient that were necessary in order to give a proper understanding of the case, and further that he should not, by reason of superior special knowledge, give countenance to suggestions of a scandalous nature, especially about women.

The sad and cruel consequences of a failure to observe this last rule are exemplified in the celebrated case of Lady Flora Hastings (9)—a lady in waiting at Queen Victoria's court at the beginning of that sovereign's reign. In 1839 Lady Flora was on duty at court performing the functions of lady in waiting upon the Sovereign, when her *appearance* suggested to some of her associates that she might be in "the family way." One of them reported her suspicions to Sir James Clark, the court physician, who at once fell in with the insinuation and immediately catechized her and intimated that she "must be privately married, or at least ought to be so." This Lady Flora indignantly denied, and, to vindicate her character, demanded a consultation. Lord Melbourne reluctantly permitted a medical examination to be made, which at once established her chastity. Sir James Clark and Sir Charles Clarke, the consultant, certified that "there are no grounds for believing that pregnancy does exist, or ever has existed." She survived this humiliating ordeal only a few months. Sir James Clark, the court physician, should have been more alert and circumspect; and by the observance of that prudence and delicacy which should ever characterize the physician in dealing with such conditions, he could have saved the lady and her friends much anguish and distress.

The verdict in the noted case of Kitson versus Playfair and wife tried in London in 1896 (10), being a suit for libel and slander because the doctor told his wife that Mrs. Kitson had had a recent miscarriage though she had been away from her husband considerably more than a year, strengthens and fortifies the great doctrine of inviolability of the confidence of patients.

Mrs. Kitson was the wife of Mrs. Playfair's brother. Mr. Kitson was not prosperous, so his brother gave him an annual allowance of £500. But upon Doctor Playfair's unfortunate and damaging statement to his wife the allowance was discontinued. At the trial the weight of expert testimony was that a placenta might be retained in utero for more than a year after a miscarriage. The damage was laid at £5,000, but the jury awarded the unprecedented amount of £12,000. Upon application for a new

trial, this amount was reduced by agreement to £9,200. In any case, the defendant was cast in far heavier damages than the plaintiffs had tried to obtain in the first instance. The reason for this is probably to be sought in the strong Anglo-Saxon prejudice against tattling about womankind. The Mordaunt case, in 1870, made the Prince of Wales less unpopular, because it was held that the evidence he gave in the witness box was the only evidence which a man of the world could give under the circumstances. The slanders which drove Lady Flora Hastings and the wife of Sir Travers Twiss from Queen Victoria's court, even the statements made against the actress, Adelaide Neilson, which also came to a legal test, were not regarded with particular favor by the English people. Women may gossip among themselves and malign other women, but, outside the continent of Europe, a spy or he-gossip is usually regarded as a cad and no gentleman. A physician, at all events, should be neither spy nor he-gossip.

So far as I have been able to discover, the American Medical Association, organized in 1847, was the first large medical body to adopt a formal written code of ethics, traditional usage having formerly prevailed.

It is true that many treatises had been written upon the subject, and that of Percival, an English physician, was largely drawn upon in formulating that document. Its preamble is here transcribed.

Inasmuch as an institution so conducted as to give frequent, united, and emphatic expression to the views and aims of the medical profession in this country, must, at all times, have a beneficial influence, and supply more efficient means than have hitherto been available here for cultivating and advancing medical knowledge; for elevating the standard of medical education; for promoting the usefulness, honor, and interests of the medical profession; for enlightening and directing public opinion in regard to the duties, responsibilities, and requirements of medical men; for exciting and encouraging emulation and concert of action in the profession, and for facilitating and fostering friendly intercourse between those who are engaged in it: therefore, Be it resolved, etc.

That code is a splendid confession of faith, and its lofty tone is such as to command the respect and confidence of all. It may be remarked here that the charter of the Medical Society of the District of Columbia, granted in 1817, prohibited the adoption of any code of ethics or tariff of fees. The reason for this, however, was because the society was charged with the duty of licensing practitioners of medicine.

The fee table has always been, and necessarily so, an important consideration among medical men; and much criticism and vituperation have been launched against the tariff of fees adopted by medical organizations for the guidance of their members. It must not be imagined that the office of the physician can ever be supported as an exclusively beneficent one, yet gratuitous service of an eleemosynary character may and should be freely extended, nevertheless, altruism has its limitations, and rejecting all thought of *exorbitant charges and fee splitting*, those who are able should be required to pay according to the responsibility assumed and the service rendered. It is the universal judgment of all experience that it is best to collect the fee while gratitude is warm and

ardent. By so doing one may keep his friend as well as get his remuneration.

I have cited the utterances of eminent medical men of the different countries of the olden time, and their views on medical character harmonize to a remarkable degree. They were not indifferent to the emoluments that were justly theirs, but it is a matter for congratulation that their humane and benevolent dispositions stand out in such clear and striking fashion. The following incident, though occurring more recently, is illustrative of the generosity that I believe is almost universal in the medical profession.

"Mr. ——— received, in his consulting room, a gentleman of military and prepossessing exterior, who, after detailing the history of his sufferings, implored the professional man he addressed to perform for him a certain difficult and important operation. The surgeon consented, and on being asked what remuneration he would require, said that his fee was a hundred guineas. 'Sir,' replied the visitor, with some embarrassment, 'I am very sorry to hear you say so. I feel sure my case without you will terminate fatally; but I am a poor half pay officer, in pecuniary difficulties, and I could not, even if it were to save my soul, raise half the sum you mention.' 'My dear sir,' responded the surgeon frankly, and with the generosity which is more frequently found among medical practitioners than any other class of men, 'don't then disturb yourself. I cannot take a less fee than I have stated, for my character demands that I should not have two charges, but I am at liberty to remit my fee altogether. Allow me, then, the very great pleasure of attending a retired officer of the British Army gratuitously.' The kindly offer was accepted. Mr. ——— not only performed the operation, but visited his patient daily for more than three weeks without ever accepting a guinea—and three months after he had restored the sick man to health, discovered that, instead of being in necessitous circumstances, he was a magistrate and deputy lieutenant for his county, and owner of a fine landed estate. 'And, by ———!' exclaimed the fine hearted surgeon when he narrated this disgraceful affair, 'I'll act exactly in the same way to the next poor man who gives me his *word of honor* that he is not rich enough to pay me!'"

With the progress of scientific medicine and its more independent status, many complex questions arose and they have continued to agitate the medical world. Not the least of these is the matter of consultations. The profession at times has been almost torn asunder by this vexed question, and it has been accused of prejudice and intolerance, and denounced as a "vile trades union" by the advocates of certain so called "systems of treatment." But as consultation is supposed to be *solely in the interest of the patient*, it is no intolerance to decline consultation with one who is so narrow as to adhere to an exclusive dogma. Medicine in its broadest sense includes primarily a knowledge of the structure and functions of the body, skill to recognize pathological changes, and an ability to apply such remedial measures for the amelioration of the condition as reasonable theory and ripe experience justify. On such a basis as this, consultation should be free and untrammelled.

There are numerous questions of an ethical character that have been more or less acrimoniously discussed by the profession from time to time that might be of interest to consider, did space permit. Suffice it to say that the doctor, despite the jibes and satires aimed at him and notwithstanding his sometime moral delinquencies and many lapses, is an all round good fellow, benevolent and generous, and self sacrificing on occasions; who in time of plague and pestilence ignores the first law of nature, self preservation, and stands unflinchingly with his face to the dreaded foe and yields his own life if need be for suffering humanity.

Medical ethics has always been based on broad and philanthropic ideals, and many treatises have been written upon the subject, differing in form and manner of expression, however, but the essence and spirit of the whole matter is contained in the Hippocratic oath, and all others are merely amplifications of that noble document.

The conclusion of the whole matter is, that whatever ye would that men should do to you, do ye even so to them.

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3 THOMAS CIRCLE.

SYNCOPE AND FATAL ASPHYXIA UNDER NITROUS OXIDE-OXYGEN.*

Two Illustrative Cases.

By H. CLIFTON LUKE, M. D.,
New York,
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As administered by the modern methods, the remarkable safety of nitrous oxide-oxygen, its usual freedom from toxic or other untoward effects either during or after its use, make any marked deviation from this rule worthy of record. Notwithstanding the fact that the margin of safety with nitrous oxide-oxygen, all things considered, is undoubtedly greater than with the other general anesthetics, it must be remembered that we have no intrinsically safe agent, and consequently an appreciable risk is always present, even here; but this risk can be reduced practically to nil where the administrator is experienced and skillful and is provided with a good apparatus. Concerning apparatus, the writer favors one affording a continuous flow of the gases under reduced pressure, provided with delicate measuring and control valves, and having an efficient ether attachment, in preference to the other well known type which employs the intermittent form of gas delivery without the use of reducing valves. The former variety of instrument was used in both of the cases here recorded.

Following is a description of two accidents oc-

*Read before the New York Society of Anesthetists, November 13, 1914.

currence in the use of nitrous oxide-oxygen with a brief discussion:

ASPHYXIA.

CASE I. A. P. M., male, gardener, aged seventy-one years, was recently admitted to the medical service of St. Luke's Hospital with a diagnosis of arteriosclerosis and gangrene of the right foot. On physical examination (five days before operation), he was described as a rather pale, old man, well developed and nourished and not appearing to be very ill. No dyspnea, cyanosis, or edema. Pulses equal, regular in force and rhythm, with increased tension and rate of 80. Heart normal in size and position; sounds regular, distinct, and of fair muscular tone, with diffuse systolic murmur at the base, probably not organic. Lungs negative. Right foot showed gangrenous degeneration with discoloration and ulceration. Blood was negative. Urine, except for a trace of albumin, was negative on several examinations. X ray examination of legs and feet showed distinct evidence of arteriosclerosis. Three days before operation the systolic blood pressure was 125 mm., and diastolic 80 mm. It was decided to remove a portion of the foot, and gas and oxygen was chosen as the anesthetic.

The anesthetic in this case had a fair experience with the gas-ether sequence, but only a very limited experience with nitrous oxide-oxygen. A modified Boothby-Cotton apparatus was used. On leaving the ward the pulse was 84, and respirations 24. There was no preliminary medication. The patient was started on a bag of pure gas with a small supply of oxygen introduced after the first two or three breaths. A moderate cyanosis developed after about one minute, becoming more intense and accompanied with a somewhat labored and slowed respiratory effort as the patient was wheeled into the operating room. More oxygen was then supplied (the skin incision was made about this time) and a moment later a large amount of oxygen was turned into the bag and the gas turned off since the cyanosis was increasing, while the breathing was becoming very slow and dyspneic. The respirations, after a few convulsive efforts, finally ceased; the pupils were dilated. The face mask was immediately removed and the pulmotor and other methods of respiratory stimulation were brought into service. All to no avail, however, since the patient was pronounced dead just six minutes from the time of entering the operating room. The heart stopped almost coincidentally with the respirations, which seemed to indicate that a rather advanced state of myocarditis was present, and the heart was unable to cope with the unusual strain put upon it.

Most deaths with this anesthetic confirm the opinion that cyanosis is the cardinal symptom of danger, and this case appears further to substantiate this. The writer questions whether this death would have occurred had the patient been provided with a sufficient supply of oxygen from the start to maintain a good color. The three stages of asphyxia, as usually described, were shown quite distinctly here; passing from the early rapid breathing to the slowed dyspneic type as the cyanosis increased, this followed shortly by the convulsive type, which, leading to the stage of exhaustion, was supervened by muscular flaccidity, dilated pupils, and a few prolonged, sighing respiratory efforts before breathing ceased.

In these cases, with the onset of asphyxia, the venous blood with its high carbonic acid and low oxygen content, causes the peripheral and splanchnic vessels to contract, thereby raising the blood pressure. Soon the highly venous blood exerts a similar contractile influence on the pulmonary vessels, thus distending and greatly overtaxing the right heart. In the case under discussion, when this condition obtained, there was a resultant paralysis of the heart due to the myocarditis and general lowered resistance of old age. In the young adult,

where the heart muscle is strong and vigorous and the nervous mechanism active and responsive, under a like strain the outcome would probably have been a victory for the patient. Of course the rise of blood pressure associated with asphyxia makes cerebral hemorrhage a reasonable possibility in this case; but the symptoms seem to point to asphyxia with cardiac failure as much more probable. The patient's wrist and temporal arteries, on palpation, felt very soft, and the blood pressure was only 125 mm. beforehand. Unfortunately an autopsy was not obtained.

In selecting cases for this anesthetic, the question of age has a certain importance because of the fact that senile tissues cannot adapt themselves to the sudden and often pronounced respiratory and circulatory changes which might be encountered. But with the element of cyanosis eliminated, it is believed the risk in old age with this anesthetic is no greater than with ether or chloroform, while the postanesthetic dangers are practically nil, which cannot be said of the latter two agents. Our St. Luke's Hospital records on this point show that during the last three years about two hundred patients, between fifty and eighty-four years of age, have received this anesthetic for more or less prolonged operations with no untoward results, save in the one case here reported. Of course this is a small number of cases with a relatively high mortality, but it must be mentioned that the majority were very poor risks, otherwise they would not have been given gas and oxygen. Advance information, especially concerning the heart and blood pressure, is important in such cases, and the anesthesiologist should resolve never for a moment to tolerate anything but good oxygenation of the blood, adding a little ether, if necessary, to meet the requirements of the surgeon.

In the administration of these gases, *anticipation* is the keynote of success. Untoward events are, probably without exception, heralded by fairly definite clinical signs, and noting these, the keen, attentive observer anticipates any undesirable change with proper corrective measures. Of course, experience and an efficient scientific apparatus are quite necessary requisites of this prophylaxis.

Once the asphyxia is established in these old people, one must act quickly; the second stage may be reached in a few moments with a resulting severe tax on the heart, which is likely to give out, and then artificial respiration or other stimulative means would be of no avail. Ample oxygen supply, or flooding with it if necessary, artificial respiration with establishment of a clear airway, and dilatation of the anal sphincter would represent immediate measures for relief. Direct massage of the heart has been tried in such cases as a last resort. In referring to reported deaths from this anesthetic, Boothby and Cotton (1) say: "They are obviously due to conducting the anesthesia according to the erroneous idea of the necessity and safety of cyanosis." They say that no deaths have been reported in which the patient's color was maintained pink. Miller (2) states that there have been reported at least thirty-two deaths with nitrous oxide, of which nineteen were due directly to the anesthetic. He tabulates eleven reported cases to which may be added Sal-

zer's (3) and my own. Teter (4) says that he knows of sixteen fatalities with the use of this anesthetic. In only about one third of Miller's cases was oxygen known to be used with the nitrous oxide.

In a series of about five hundred administrations of nitrous oxide-oxygen for the performance, in a large majority of the cases, of major operations the writer has seen but one case of syncope which could be attributed with any degree of certainty to the anesthetic.

SYNCOPE.

CASE II. Fairly vigorous young woman, aged thirty-three years, underwent a radical operation for carcinoma of the breast. The operation was being conducted with a moderate amount of hemorrhage and without rough manipulations. During the first hour everything went smoothly; good color had been easily maintained with 100 as the average pulse rate. No ether had been used. Very soon after this, the pulse rate went rather quickly to 120, and some intermittency was noted. A few moments later a marked pallor rapidly made its appearance, immediately followed by a slight cyanosis, the latter not readily yielding to the extra oxygen supply furnished to correct it. The slight dusky color with the pallor present gave the skin a peculiar, ashy hue. The pupils became moderately dilated, having a sluggish reflex. Respirations were shallow, but not labored. Pulse remained rapid and intermittent. Dissection of the axilla then in progress, was, by request, stopped and the following treatment immediately instituted. The nitrous oxide was turned off, a large amount of oxygen supplied, and a fairly strong vapor of ether run into the mask with the object of attaining a quick stimulation of the respiratory centre and heart. After a few anxious moments the respirations became much more efficient, with a coincident improvement in the color; the pulse dropped to 104, while the intermittency had practically disappeared and the tension was much improved.

The clinical picture here was quite different from the case reported above, there being but slight cyanosis with acute and marked pallor, which was apparently symptomatic of the temporary failure on the part of the heart, together with shallow respiratory effort from the general prostration; on the other hand, in the fatal case (Case I), cyanosis and labored breathing were the predominant symptoms, with complete heart failure supervening as a secondary result.

It is difficult to define definitely the cause of the sudden collapse in this case. Cotton and Boothby describe symptoms of overdose of nitrous oxide where sufficient oxygen is admitted to maintain a pink color, mentioning stertorous respiration, onset of excessive mucous secretion, a deathlike pallor, loss of facial reflexes, shallow respirations with probable fall of blood pressure, which, apart from the symptoms of stertorous breathing and excessive mucus, is quite comparable to the case here reported. Since the apparatus used had no measuring device, it is impossible to say if an excess of gas, that is, over eight to ten litres a minute, was delivered to the patient. No positive pressure, however, was being used at the time. Acapnia seems to be ruled out, since there was no excessive respiratory rate maintained prior to the onset of the symptoms, and overoxygenation of the blood had not been present at any time beforehand. Hemorrhage could hardly have been the cause here, but it is conceivable that a patient's pallor, due to hemorrhage or fall of blood pressure from other cause, might be obscured by maintaining a high pink color with excessive oxygen supply. That the administrator of these gases

should by occasional observation keep in touch with the progress of the operation, severe or rough visceral manipulations, and especially a general idea of the amount of hemorrhage, is most important, since it puts him on guard in advance for the appearance of certain untoward symptoms, and gives him opportunity to employ, perhaps, some prophylactic measures in addition to forming his plans for any emergency treatment required.

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Medical Queries and Answers

The JOURNAL is now prepared to answer questions from subscribers on strictly medical topics, recent treatment, bibliography, operative technic, etc. Personal replies are sent by mail as soon as they can be properly prepared; later, such answers as seem to be of general professional interest will appear in this department. Subscribers are requested to confine their queries, general or personal, to matters of serious medical import.

Can you refer me to some useful literature on surgical operation during pregnancy?—Fischer, writing of operations on pregnant women, has given a very useful review of the principal stages in the development of the present system of surgical technic. (Ueber Kaiserschnitt, Symphyseotomien und Hebosteotomien, *Zeitschrift f. Geburtshilfe u. Gynäkologie*, lxxv, p. 49, 1914.) All aspects of these operations are touched. He inquires into the value of the newer methods, thus going into the questions which surgery has raised. Wide as the field of research is, and many as the factors are which must be taken into account, the question for most inquirers narrows down into the simple inquiry, Is the extraperitoneal method safe? Wisely, Fischer comes to few positive conclusions. As a general rule he finds that in the main the symphysis—the short incision—is the deciding factor in the success of the original Cesarean section. He points out that nowadays it is much easier, through a short incision, and sewing up the peritoneum, to avoid infection. Then, too, surgeons have burned their fingers with symphysiotomy and hebosteotomy, as deaths have been frequent, and consequently both these operations are now out of favor. Today, when the popularity of the extraperitoneal operation goes unchallenged in the surgical debate (Küstner, VI internat. Gynäkologenkongress, Berlin, 1912), the opposite view will attract attention. For example, the Argentine doctor, Gabastou, has striven with some success to sustain the Gigli operation. (*Semana Medica*, p. 85, 1914.) He cites several authorities, Döderlein, Kraemer, and Bumm, but we should welcome a more critical examination of their statistics as to fatal cases. He cites much evidence that the mortality of pubiotomy has declined, thanks to better technic, but it must be remembered that the success of technic, important as it is, by no means depends entirely upon skill, but to a great extent

upon the professional policy of the surgeon. Zarate follows Gabastou in his acquittal of the operation from much of the responsibility for the numerous surgical victims among mothers and babies; but he ends by approving of only one authority and method, and that is frankly acknowledged to be his own. (*Ibidem*, p. 539, 1914.) To change the method of these operations and doubtless to improve them, seems to be a favorite practice of idealists and disinterested surgeons (Davis, *Am. J. Obst.*, p. 1030, 1913). The proper aim and method is to be found in a masterly paper by Sciapades (*Abhandlungen aus dem Gebiete der Geburtsh. u. Gynäk.*, ii, p. 597, 1913). The accuracy and completeness of the information in this study cannot be doubted; it is the case of an established doctrine; primarily and essentially these operations called pubiotomy and hebostomy are for special circumstances of pregnancy. They are dangerous except in women who have borne children; the subcutaneous hebostomy of Döderlein is the most dangerous method, but the surgeon must have the right touch in all, and in the interests of the child must take a decisive part in the development and vicissitudes of labor. In another paper, Sciapades presents a still broader view of the operations in pregnancy (*Abhandlungen*, pp. 201-575, Ueber Myom und Schwangerschaft). He appears to have a slight bias toward Cæsarean section and against contemporary surgical invention. "Supravaginal amputation according to Chrobak is the best method" (p. 510) of excising the uterus and tumors. He ranges from the problems of castration and hysterectomy to enucleation and the radical Cæsarean section. We gather that he agrees with Schauta (XVI Kongress Innere Medizin), that this operation is adapted to the requirements of most cases, and with Werthheim that it is the best mode of saving the child (Winckel's *Handb. d. Geb.*, i, p. 1.); and it covers a multitude of sins, carelessness, neglect, even ambition, under the plea of serving life and the foetus. (Kittner, *Journal akusich, i, shenstsch bolj.*, 28, p. 539, 1913.)

Let us now come from the general to the particular. Leaving out of the question the mortality of Cæsarean section and hebostomy—except that according to the best figures fatal cases after Cæsarean section are two per cent. and after hebostomy 5.71 per cent. (Chaimtschik, *Inaug. Diss.*, Munich, 1912)—a large number of cases of operation during pregnancy are given in the bibliography. Cases that most often come under observation are those of tumor, cysts, hernia, cholecystitis, fibroma, and diseases of the pelvis. These are reported by Weibel (*Zentralblatt f. Gynäk.*, lxxxvii, p. 1649, 1913), Schmid (*ibid.*, p. 1615), Bonney (*Journal of Obst. and Gynec. Brit. Emp.*, xxiv, p. 311, 1913), and Grosse et Pasquereau (*Rev. mens. de gynéc. d'obst. et de pédiatrie*, viii, p. 665, 1913). We are disposed to regard these essays as fields of battle between blood and judgment, skill and crude novelty, the inclinations of the surgeon and the dictates of reason. We are led to the conclusion that obstetrical surgery has advanced, but there are still defects of judgment, technic, and method.

Kindly give the latest information concerning phlebitis and its treatment. Concerning the

latest knowledge on this subject of phlebitis, it is recognized and ably maintained that there is always a toxic cause—a chemical or bacterial poison. (Zesas, *Zentralblatt f. Chir.*, 41, p. 971, 1914.) An instance is supplied by Lafforgue, where the pneumococcus was the agent. (*Progrès méd.*, p. 225, 1913.) The bacillus of tuberculosis often produces phlebitis in the later stages of phthisis. The process, which has been but slightly studied, appears to consist in a thickening of the intima. (Brauer, Schröder, and Blumenfeld, *Handbuch der Tuberkulose*, i, p. 160, 1914.) It has been remarked that the bacilli of pneumonia and influenza have been identified with the process that underlies the phenomena of phlebitis. Kantorowicz has shown the several forms of phlebitis to depend on infiltration of the intima by round cells from the blood. He ascertained that the diphtheria toxin particularly exhibited this effect. Our readers may be aware that Virchow and his followers described the venous wall as representing a medium essentially impervious to fluid exudates. Orth, on the other hand, has often seen them form on the wall of the vein; they subsequently become firm and hard, a typical net of fibrin. (Orth, *Deutsche med. Wochenschr.*, 40, p. 465, 1914.) The vessel thus loses its elastic character under the influence of exudates and toxins of bacteria. (Zesas, *op. cit.*) In the history of patients we find rheumatism, scarlet fever, angina, acute enteritis. (Tavel, *Deutsche Zeitschr. f. Chir.*, cxvi.) Orth's description must be regarded as a correct analysis of the process. In phlebitis a thick, purulent exudate forms in the lumen of the vein. Hence, on bacteriological grounds, it is taken for granted that suppuration, abscesses, appendicitis, infection after operations, supply the pathological basis of phlebitis. (On this point, cf. Payr, *Zentralblatt f. Chir.*, xxxi, p. 50, 1904.) Instances are described by Novy and Brieger of phlebitis through intestinal toxins, through staphylococcus. (Burgess, *Dublin Journ. Med. Sc.*, February, 1913; Jackson, Porter, and Quimby, *Journ. A. M. A.*, i, p. 1469, 1904.) Akin to these are cases of phlebitis produced by cholesterol (*Deutsche med. Wochenschr.*, xl, p. 1215), by adrenaline (*Zeitschr. f. exp. Path. u. Therapie*, xvi, p. 230, 1914.) Poisons appear to cause a chronic degeneration of the vein, a process in which the valves become involved. These are the main features of the pathology, to which we may add puerperal infection.

The modern treatment is regulated—or should be regulated—by the principles of bacteriology. Mechanical devices, pumps, air bags, massage, are dubious measures. Operations, the anastomosis of Carrel, are condemned in most cases by careful practitioners. The indications for them are not always clear. Rest, on the other hand, with specific medicines—iodides, arsenic, mercury, and sometimes heart stimulants, are generally employed. A tolerably complete account of the treatment will be found in Chapman's monograph, *Etiology and Treatment of Phlebitis*, 1913. Successful arteriovenous anastomosis with complete reversal of the circulation has been practised. (Bernheim, *Journ. A. M. A.*, p. 360, 1913; Venus, *Zentralbl. f. d. Grenzgeb. d. Med.*, December, 1911.)

Therapeutic Notes.

Uses of Pituitary Extract.—H. J. Phillips, in the *Therapeutic Gazette* for July, 1914, states that where one wishes to increase the blood pressure, pituitary extract is usually suitable and beneficial. He has been employing it in a case of mitral insufficiency, administering forty minims (2.6 c. c.) of a fluid preparation three times daily, in alternation with a preparation of digitalis. The patient has shown much improvement, the blood pressure being increased, the pulse rate lowered, and in particular, a marked diuretic effect exerted.

In labor cases with lack of vis a tergo, except in the presence of marked pelvic deformity—especially in Naegeli's pelvis—the drug may be given and repeated in one to three hours, if necessary, with the expectation of benefit. It manifestly induces stronger pains in the second stage of labor and may save several hours of waiting. The author has observed no difficulty with regard to prompt extrusion of the placenta in the cases given pituitary extract, and found that no more hemorrhage followed its use than occurred in cases in which it was not used.—J. B. Lukins, in the same periodical, reports success from the use of pituitary extract in a case of hemorrhage in typhoid fever, which all other measures had failed to relieve. Two successive doses each produced an effect lasting about half an hour, but the result from the third dose was decidedly less marked.—H. L. Read considers pituitary extract one of the most valuable agents in shock. In the case of a man suffering from the shock of a double amputation, so profound that it was thought he would certainly die, fifteen minims (one c. c.) of the extract, injected into an opened vein in each leg, resulted in improvement lasting about an hour, when, evidence of circulatory failure again appearing, another dose was given. The patient recovered. If pituitary extract is used in the first stage of labor, it should be given only in small doses. Read has always had time to protect the perineum from injury when using the drug in the second stage, and prefers the employment of pituitary extract to that of forceps.

Calcium in the Treatment of Inflammatory Pelvic Affections.—E. Landsberg, in *Semaine médicale* for June 17, 1914, is stated to have administered subcutaneous injections of calcium lactate in eighteen cases of pelvic inflammation, in an attempt to hasten recovery under medical treatment and avoid surgical intervention. Chiari and Januschke had already called attention to the efficiency of calcium in combating inflammatory processes in general. The author used a one per cent. solution of the salt, and frequently divided the amount to be introduced into two or more injections, to obviate skin irritation. Two or three c. c. (thirty to forty-five minims) of the solution, he states, can be injected without any likelihood of pronounced local trouble. As the sensitiveness of the skin to the solution varies in different persons, small amounts only should be used at first, and the quantities then progressively augmented as far as proves practicable. The

author never injected more than four c. c. (one dram) at a single point, and the total amount given at one sitting never exceeded ten c. c. (2½ drams). The injections were repeated every two or three days, and administered as near as possible to the affected parts.

Of the eighteen cases treated, ten presented extensive inflammatory enlargements of the annexa, accompanied, in most instances, by the ordinary evidences of acute pelvic peritonitis. Of these patients, six left the hospital completely cured, so that no disease of the annexa could be detected by palpation. In three cases, slight thickening of these organs could still be felt, but the patients remained free from local discomfort, even after resuming their respective occupations. In one case with an abundant exudate in Douglas's pouch the treatment failed, but in two cases of extensive parametritis, as well as in four of recent inflammation of the annexa and the pelvic peritoneum, excellent results were obtained. In some of these cases the calcium lactate injections were started only after customary measures of treatment had already been tried and found ineffective. In all future cases, however, the author proposes to order rest and calcium injections from the outset where there are marked tenderness and fever, and later, when these have subsided, add to the treatment measures calculated to hasten absorption of inflammatory products. In vaginitis the author advises local irrigations with a five per cent. solution of calcium lactate. The latter may also be employed in dry form, especially in the treatment of freely discharging wounds. To insure a simultaneous antiseptic action a mixture consisting of ten to twenty grams (2½ to 5 drams) of calcium phenate and eighty to ninety grams (2⅔ to 3 ounces) each of zinc oxide and starch powder, is recommended.

Treatment of Chronic Prostatitis.—Kantorowicz, in his recently issued work entitled *Störungen der männlichen Geschlechtsfunktionen*, presents the following formulas, which he considers of much value in the treatment of prostatitis:

I.

R Argenti nitratis, gr. i (0.06 gram);
Cocainæ hydrochloridi, gr. ii (0.12 gram);
Olei theobromatis, 3iiss (6 grams).

Fiant suppositoria No. vi.

Sig.: One to be inserted before retiring.

II.

R Zinci acetatis, } āā gr. iss (0.1 gram);
Aluminis, }
Olei theobromatis, 3iiss (10 grams).

Fiant suppositoria No. x.

Sig.: One to be inserted twice a day.

III.

R Iodi, gr. v (0.36 gram);
Petrolati, gr. xxxvi (2.4 grams);
Olei theobromatis, 3iiss (12 grams).

Fiant suppositoria No. xii.

Sig.: One to be inserted two or three times a day.

The first formula should be employed in the early stages of the condition, the other two later. The suppositories should be introduced as high up in the rectum as possible. Massage of the prostate is, of course, not to be neglected, as it is beneficial in several different ways. If well borne, it should be practised two or three times weekly for several weeks.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal
and The Medical News.*A Weekly Review of Medicine.*

EDITORS

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Address all communications to
A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,

66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transpor-
tation through the mail as second class matter.

Cable Address: Medjour, New York.

NEW YORK, SATURDAY, JANUARY 30, 1915.

A HELP TO COUNTRY PRACTICE.

While the introduction of the automobile has greatly increased the earning capacity of the country doctor, he is still unable to get adequate returns for the time required in visiting patients who live eight or ten miles away. From an economic point of view it is much less costly to bring the patient to the physician than to take the physician to the patient. This is worked out to the advantage of both patient and physician in private hospitals in cities. Hitherto only the dwellers in cities have been able to obtain hospital treatment, but there is a growing tendency to establish hospitals in the smaller towns. Indeed, there is special reason to establish a kind of nursing home, as the English term it, in the villages of rural communities purely for the economic advantages which such a small private hospital or nursing home offers to both patients and physicians.

The country doctor, be he never so industrious, has a rigid limit put upon his income by the number of miles he can cover in a day's time. He may have patients ten miles away from his home in either direction, making forty miles he must cover in order to visit two patients. If the doctor has accommodations where patients can be received and cared for at a low rate, many can be brought to him with great economy of time. He can see his patients

oftener and give them better care in a nursing home. A doctor's wife recites in a recent issue of the *Ladies' Home Journal* an experience which is well worth study. In a village of 2,000 population she leased a neighboring cottage at fifteen dollars a month. She fitted this up very simply, partly with overflow furniture from her own residence, engaged the services of local, untrained nurses at one dollar a day or three dollars for twenty-four hours. With the aid of a maid she cooked the food for the patients in her own kitchen, and in this way enabled the doctor to care for fracture and accident cases, minor operations, convalescents, and children whose mothers could accompany them. A uniform charge was made of five dollars for the first twenty-four hours and three dollars a day thereafter. The cottage had fourteen beds, some of which were occupied all the time, and the first year \$5,000 was cleared. Not only was the venture a paying one, but it also served to emphasize the fact that the doctor preferred not to visit such patients as were able to come to him. Such an arrangement offers great hope for a solution of the problem of the overworked country doctor.

MAGNESIUM SULPHATE IN TETANUS.

Since the outbreak of the European war, the foreign journals are filled with reports on methods of treating tetanus, which seems to be the most prevalent and deadly infection so far encountered to add its terrors to that of human conflict. This war is probably destined to teach us many valuable lessons in the care of the sick; not the least valuable should be how to treat tetanus after its dreadful symptoms have once set in. The prophylaxis of the disease is moderately satisfactory since we have learned when and how to give the antitoxin, but this agent seems to be almost worthless when it comes to curing the disease after it has developed. Obviously all surgical measures must be undertaken to remove the local infection as soon as possible after the receipt of a wound, but even with the best surgery and the employment of antitoxin, both of which can be undertaken sufficiently early in only a small proportion of cases, the number of cases of developed tetanus is appalling.

Several years ago—1906—Meltzer first showed the anesthetic and paralyzing action of magnesium sulphate when injected into animals. At that time, or shortly thereafter, it was suggested that subcutaneous or intraspinal use be made of this drug for the control of tetanic symptoms. This disease was of too infrequent occurrence, however, and the toxic action of magnesium sulphate was too greatly

feared to encourage general trial of the suggestion. Now that tetanus is so common in the war zone and so deadly as to warrant even considerable risks in its treatment, the suggestion seems to have been taken up with eagerness. W. Weintraud communicates an interesting paper on this question to the *Berliner klinische Wochenschrift* for October 19, 1914; he reports excellent results from the subcutaneous injection of this drug in a number of cases in which symptoms had developed, and adds to his own experiences those of a number of others who obtained equally favorable results. Attention is directed particularly to two dangers in the use of magnesium sulphate. The first is that the fear of the toxic action of the drug is often such as to prevent the administration of enough to do any good and the patient is allowed to die of the disease. The second is the administration of doses of the drug which are too large and which threaten life, or actually cause a fatal result from respiratory failure. The happy medium can fortunately be attained by the careful administration of repeated small doses with careful watch of the effects of each increment, and in such cases the dangers mentioned are little to be feared. It is suggested that from three to four grams of the drug be injected at once and repeated at intervals until there is a relaxation of the tetanized muscles, which can then be maintained by suitable repetitions. Larger single doses have been given without danger, but it seems best to be on the safe side.

While this treatment has given most promising results, its dangers must not be overlooked. For the combating of danger, one must be prepared to carry on artificial respiration, and in case the heart is weakened to employ cardiac stimulants. In addition to artificial respiration one should always be ready to inject five c. c. of a five per cent. solution of calcium chloride to counteract the effects of the magnesium. Fortunately this latter drug is capable of antagonizing the magnesium sulphate almost instantaneously. This discovery, too, we owe to the researches of Meltzer.

Not only may we rejoice in the prospect of having a method of treatment which will control the heartrending sufferings from tetanus and often lead to the complete recovery of the patient, but there is a certain peculiar pleasure to be derived from the knowledge that the fundamental work upon which this treatment is based was done by an American investigator, and that European scientists, who are usually so loath to give America due credit for such work, are forced to come to us for what promises to be a great and lasting advance in therapeutics.

SIX FACTS FOR ZOOPHILES.

It is obviously unnecessary to advance arguments in favor of animal experimentation in order to convince the profession of the important place such work occupies in the progress of medicine. It is perhaps not amiss, however, to refresh our minds upon the subject from time to time in order that we may the more successfully combat the contentions of the antivivisectionists. An article by Dr. Henry Dwight Chapin, in the *Popular Science Monthly* for January, 1915, is worthy of special consideration; while making a general plea for the pursuit of animal experimentation, he gives in detail the specific advantages that have accrued to children alone as a result of this kind of investigation.

After citing the fact that the great majority of the sufferers from sickness are children, he gives us the specific instances which we take the liberty to classify and summarize as follows: First, the average death rate from diphtheria in nineteen large cities of the world in 1893 was a little more than eighty per 100,000 of population. In 1907, after antitoxin had become generally known and used, the rate dropped to seventeen per 100,000. The severity of the disease has also been lessened. Very rarely now do we see a death accompanied by the torture of the prolonged strangulation of membranous croup. At the Willard Parker Hospital in New York before the days of antitoxin, two thirds of the croup cases that were intubated ended fatally; now three fourths of them are saved. Antitoxin, when given early, will not only cure most cases, but will also immunize those closely exposed to the infection. The city board of health gave over 35,000 immunizing doses without serious sequelæ. These truths about diphtheria constitute a first fact for zoophiles.

Second, antimeningitis serum has reduced the mortality of cerebrospinal meningitis to twenty-five per cent. or less. Before this treatment was instituted, the mortality ranged from fifty to seventy-five per cent. or higher. Likewise, as in diphtheria, the duration of the disease has been shortened and the chance of sequelæ lessened—all as a result of animal experimentation. Third, tuberculosis also lends itself to combat the arguments of antivivisectionists. All agree that early diagnosis is the prime requisite in the treatment of this disease. The use of rabbits and guineapigs has made this possible and thus enabled us to check, in a measure, the ravages of tuberculosis during childhood. Fourth, the rehabilitation of a whole class of unfortunate mental defectives has been made possible by animal experimentation, for it was directly

from Schiff's implantation of the thyroid in the abdominal cavities of dogs that the successful treatment of cretinism was evolved. Fifth, the Pasteur treatment, according to Chapin, has reduced the death rate from hydrophobia to less than one per cent. Before this treatment was evolved as the result of experiments upon rabbits and guineapigs, the death rate varied from six to fourteen per cent. Owing to their helplessness and exposure children are especially liable to be bitten by rabid animals. As dogs themselves have shared with human beings the benefit of the Pasteur treatment, this should make an especially strong appeal to zoophiles. Sixth, smallpox used to be a disease of the young. This was because everybody who was exposed, contracted it, and scarcely any one reached adult life without such exposure. In the great Montreal epidemic of 1885, eighty-five per cent. of the deaths were among children under ten years of age. In Boston during fifteen years no deaths from smallpox occurred in children who had been vaccinated under five years of age.

Beside these half dozen diseases in which children seem to have been the special beneficiaries of animal experimentation, there are many other conditions in which they have shared the good results with adults. Notable among these are malaria, typhoid, tetanus, and a myriad of surgical conditions, all of which have been rendered more amenable to treatment on account of the aid which the animals have lent our investigators.

We must agree with Chapin that the achievements of the past justify us in predicting unlimited progress in the future. The education of the public to this point of view is part of the duty of every practitioner. There is no better way to perform this duty than to cite the concrete arguments from helpless children.

PROGRESSIVE DISLOCATION OF THE WRIST IN ADOLESCENTS.

It has been maintained that progressive dislocation of the wrist in young subjects never results from a trauma or contusion of this joint; this was likewise the opinion of Madelung, who first described this process. It has lately been shown, however, that this is not the case, and undoubted instances have been reported where professional fatigue has been the causative factor in young subjects, from fencing, for example, or piano playing. But in the vast majority of cases this pathological process certainly goes through its evolution without apparent cause. It is met with only in young people from twelve to twenty years of age, principally in girls; out of a total of twenty cases reported by

Dekeyser (*Journ. de méd. de Bruxelles*, 1901), twelve were in girls. The lesion may be bilateral.

The majority of writers now admit that this dislocation is of osseous origin, but there is considerable divergence of opinion when it comes to the nature of this origin. Some consider that the flexor muscles passing in front of the lower end of the radius, produce, by repeated movements of flexion of the wrist, pressure on this end, which at length leads to an arrest in development of the cartilage of conjugation, from which arises an anterior incurvation of the radius. As an adjuvant factor may be mentioned the inherent weakness of the ligaments in young subjects. Others maintain that the dislocation is due to a rachitic lesion of the epiphyseal cartilage, which, influenced by the flexor muscles, results in an incurvation of the radius, quite the same as in genu valgum. Gangolphe, of Lyons, used to teach that the lesion was due to an arrested development of the anterior portion of the radial conjugation cartilage, because in progressive dislocation of the wrist in adolescents this cartilage is found wanting on the internal aspect of the radius. The lesion does not exist on the posterior aspect, so that the anterior third having undergone a defective growth, the obliquity of the articular radial surface is consequently increased.

The writers who first considered this most interesting affection, produced various theories which today have only an historic interest, but there is one due to Redard (*Archives gén. de méd.*, 1892), which is deserving of notice. He is of opinion that the deformity is due to localized bone hypertrophies, the result of irritation of the conjugation cartilages of the radius and ulna, the flexor muscles being the agents of this irritation.

This theory can, perchance, be applied in certain instances of progressive dislocation of the wrist where hypertrophy of the lower ulnar and radial epiphyses has been met with, but it does not enlighten us upon the etiology of the vast majority of cases of this lesion as met with in adolescents.

EDUCATING THE PUBLIC REGARDING CANCER.

The American Society for the Control of Cancer, which was organized to disseminate knowledge concerning the symptoms, diagnosis, treatment, and prevention of cancer, to investigate the conditions under which cancer is found, and to compile statistics in relation thereto, is carrying on a systematic campaign of publicity through the lay press. The funds of the society are provided by voluntary subscriptions, mainly from its lay members. Its educational activities are directed by the medical members, among whom are such men as Dr. Clement

Cleveland, Dr. Lewellys F. Barker, Dr. Lewis S. McMurty, Dr. Arthur Bevan, and Dr. Edward Reynolds, all of whom are vice-presidents of the organization. The weekly press service of the American Medical Association is supplied with articles by the society, which are readable and entertaining, and, it is needless to say, correct, as every article is passed upon by authorities.

THE IMPROVED PUBLICATIONS OF THE DEPARTMENT OF HEALTH.

No one who has followed up the publications of the city health department for the past few months can fail to have been struck by their marked improvement, both in form and matter. By an ingenious rearrangement of the material, the suppression of useless display type, and other skillful changes, space for hundreds of additional words has been obtained without increasing the size of the bulletins, while an obviously practised hand has pruned and condensed the copy, avoided the meaningless repetition of tables, etc., with the same end in view. We shall be pardoned for referring to these striking improvements with special pride when we state that they are due to the trained gifts of Dr. Charles F. Bolduan, for many years a valued assistant editor of the JOURNAL. In congratulating the health department upon its good fortune in having Doctor Bolduan's abilities at its disposal as director of the Bureau of Public Health Education of the department, we are not unmindful of the help he has given us.

News Items.

Changes of Address.—Dr. Dudley Donnelly Stetson, from Park View, New Mexico, to Hotel Flanders, 135 West Fort-seventh Street, New York.

Dr. Hiram H. Seelye, from Daytona to Atlantic Beach, Florida.

Audubon Medical Society.—The annual meeting of this society was held on Friday evening, January 22d, under the presidency of Dr. Theodore K. Tuthill. The paper of the evening was read by Dr. William Seaman Bainbridge on Some Practical Phases of the Cancer Problem, illustrated by numerous lantern slides. Officers for the year 1915 were elected.

Physicians' Motor Club of Philadelphia.—The following officers were elected at the annual meeting held on January 5th: Dr. S. Leon Gans, president; Dr. John J. Robrecht, first vice-president; Dr. Charles A. E. Codman, second vice-president; Dr. Charles R. Haig, Jr., third vice-president; Dr. Howard A. Sutton, secretary; Dr. Lewis H. Adler, Jr., treasurer; directors to serve four years, Dr. William Duffield Robinson and Dr. Elwood R. Kirby.

Prizes Amounting to £2,000 for Motor Ambulance Designs.—Mr. Henry S. Wellcome, founder of the Wellcome Bureau of Scientific Research, London, who is an American by birth, has provided a fund of £2,000 to be awarded as prizes for the best designs submitted for ambulance bodies which may be attached to standard motor chassis for field motor ambulances. The management of the competition has been placed in the hands of a commission of experts, which includes representatives from the British army and navy. Sir Frederick Treves is chairman. The competition, which is open to citizens of all nations, will close June 30, 1915. Details of the conditions can be obtained from the secretary of the commission, Hardress O'Grady, Esq., 10 Henrietta Street, Cavendish Square, W., London, England.

Obstetrical Society of Philadelphia.—At the annual meeting of the society, held on Thursday, January 7th, the following officers were elected: President, Dr. Daniel Longaker; first vice-president, Dr. John A. McGlinn; second vice-president, Dr. F. Hurst Maier; secretary, Dr. Edward A. Schumann; treasurer, Dr. William E. Parke; council, Dr. J. M. Fisher, Dr. R. C. Norris, Dr. Barton Cooke Hirst, and Dr. George M. Boyd; publication committee, Dr. S. E. Tracy, Dr. J. G. Clark, Dr. William E. Parke, and Dr. Brooke M. Anspach.

Meetings of Medical Societies to be Held in Philadelphia during the Coming Week.—Monday, February 1st, Wills Hospital Ophthalmic Society, Academy of Surgery, Philadelphia Clinical Association; Tuesday, February 2d, Medical Examiners' Association, Philadelphia Laryngological Society; Wednesday, February 3d, College of Physicians, Lebanon Hospital Medical Society; Thursday, February 4th, Obstetrical Society; Friday, February 5th, Kensington and Southeast Branches of the County Medical Society, Physicians' Motor Club (directors).

Babies' Welfare Association, Philadelphia.—This association has organized a central bureau of information concerning all baby saving agencies in the city of Philadelphia interested either directly or indirectly in the welfare of babies. One hundred and three institutions are now members of the association. The central office has established daily postal card communication with the various hospitals caring for babies whereby the number of available beds in each hospital is daily recorded. A statistical study of the causes of the increased infant mortality in Philadelphia is also being carried on by the association.

Doctor Park Resigns as Dean.—Dr. William H. Park, Director of Laboratories of the Department of Health of the City of New York, has offered his resignation as dean of the University and Bellevue Hospital Medical College, on account of the ruling of the health department that its department heads shall not hold administrative positions elsewhere. Doctor Park was elected dean last April, succeeding Dr. Egbert LeFevre, who died in March. His resignation will probably not take effect until the end of the academic year. He will retain his position as professor of bacteriology and hygiene in the college.

American Society of Tropical Medicine.—The twelfth annual meeting of this society will be held in San Francisco, Cal., on Monday, Tuesday, and Wednesday, June 14th, 15th, and 16th, under the presidency of Captain Charles F. Craig, Medical Corps, United States Army. All who plan to attend this meeting are requested to communicate at once with the secretary, Dr. John M. Swan, 457 Park Avenue, Rochester, N. Y., who will also be glad to receive the titles of papers which are to be read at the meeting. Those who are unable to attend the meeting may send papers to the council, and they will be read either by title or by proxy and will be published exclusively in the *American Journal of Tropical Diseases and Preventive Medicine*.

Lectures on Psychanalysis at the New York University.—Dr. A. A. Brill will begin a course of lectures on psychanalysis and abnormal psychology at the New York University, Department of Pedagogics, on Monday, February 1st. The course consists of fifteen lectures of two hours each and is open to physicians and to students of abnormal psychology. For further particulars regarding the course address the Department of Pedagogics, New York University, Washington Square, New York.

The Cutter Lectures in Preventive Medicine.—These lectures will be given this year at the Harvard Medical School by Surgeon Joseph Goldberger, of the United States Public Health Service, and Dr. Victor C. Vaughan, dean of the department of medicine and surgery of the University of Michigan. Doctor Goldberger will lecture, April 2d, on Diet and Pellagra, and on April 14th, 15th, and 16th, Doctor Vaughan will lecture on the Phenomena of Infection.

Personal.—Dr. William Seaman Bainbridge, of New York, delivered an address on Chronic Intestinal Stasis on Monday, January 18th, before the Wayne County Medical Society, in Detroit, Mich., and on the following Wednesday, spoke on the same subject at a meeting of the Buffalo Academy of Medicine.

Dr. John W. Sluss, of Indianapolis, is preparing to leave for Paris early in the spring to take a position with the surgical corps of the French Army. He will be accompanied by Dr. Gustave H. Bergener, of San Francisco.

Postgraduate Nursing Instruction in Contagious Diseases.—The Willard Parker Hospital offers a postgraduate course of instruction in the nursing of contagious diseases, open to a limited number of nurses graduated from recognized training schools which meet the registration requirements of the New York State law. Applicants will not be considered for a period of service of less than five months—two months diphtheria, one month scarlet fever, one month measles, and one month "follow up" work. The first month will be probationary. The work is largely practical, although recitations, lectures on contagious diseases, and instruction as to methods of treatment, will be given. Examinations will be held at the completion of the course. If these are successfully passed, and the nurse's general work and conduct has been satisfactory, a certificate will be awarded. For further information regarding the course, address Supervising Nurse, Willard Parker Hospital, Foot of East Sixteenth Street, New York.

New York's Death Rate Declines.—The mortality during the past week was noteworthy because of the extremely low point which it reached, compared with that of the corresponding week in 1914—13.10 against 14.6 in 1914. Inasmuch as the mortality of the previous weeks was higher than that of the corresponding weeks of last year, this drop in the mortality is very welcome. Taking into consideration the increase of the population, the weekly rate during the week just ended showed a decrease equivalent to 171 deaths. The deaths from influenza numbered approximately the same as during the same week in 1914; on the other hand, the deaths from organic heart diseases, diseases of the digestive system, pulmonary tuberculosis, Bright's disease and nephritis, and diseases of the nervous system, were considerably fewer. The number of deaths from pneumonia, while much higher than in the corresponding week of 1914, was considerably below that of the week ending January 16, 1915. The mortality from the infectious diseases, especially from measles and diphtheria, was much below the average.

West Side Physicians' Economic League.—A stated meeting of this organization will be held on Monday evening, February 1st, in the Sherman Square Hotel, Broadway and Seventieth Street, New York. Following an executive session, a symposium on the payment of physicians under the workmen's compensation act will be presented. The subject will be treated as follows: In private practice, by Dr. Charles Herrman; in hospital practice, by Dr. Arnold Sturm Dorf; in private practice, by Dr. Eden V. Delphey. There will be a general discussion, opened by Dr. Richard Kalish, Dr. William S. Gottheil, and Mr. Lawrence B. Cohen, counsel for the league. The officers of the league for the year 1915 are as follows: President, Dr. Ralph Waldo; first vice-president, Dr. J. F. Terriberry; second vice-president, Dr. Charles H. Moak; secretary, Dr. John A. Cutter; treasurer, Dr. Walter S. Reynolds; chairman of the executive committee, Dr. William S. Gottheil; trustees, Dr. Harold M. Hays, Dr. Percy Schoonmaker, and Dr. Daniel S. Dougherty. Meetings are held on the first Monday of the month, except in June, July, August, and September.

Examination of Candidates for Admission into the United States Public Health Service.—Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, Washington, D. C., and at the marine hospitals of Boston, Mass., New York, Chicago, St. Louis, Louisville, New Orleans, and San Francisco, on Monday, March 8, 1915, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the bureau.

Candidates must be between twenty-three and thirty-two years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

For further information regarding the scope of the examination and for invitation to appear before the board of examiners, address the Surgeon General, United States Public Health Service, Washington, D. C.

Philadelphia County Medical Society.—On Wednesday, January 20th, the annual business meeting of this society was held and the following officers were elected: President, Dr. Edward E. Montgomery; first vice-president, Dr. Seneca Edgart; associate vice-presidents, North Branch, Dr. Harry Hudson; South Branch, Dr. Paul B. Cassidy; Kensington Branch, Dr. William T. Dempsey; West Branch, Dr. Theophilus J. Ellinger; Northeast Branch, Dr. George C. Hanna; Northwest Branch, Dr. Howard D. Geisler; Southeast Branch, Dr. Benjamin H. Mann; secretary, Dr. William S. Wray; assistant secretary, Dr. Elmer H. Funk; treasurer, Dr. Edward A. Shumway; additional censor, Dr. Judson Daland; additional directors, Dr. William S. Newcomet, Dr. J. Torrance Kugh, and Dr. William E. Parke.

New York Physicians' Mutual Aid Association.—The forty-sixth annual meeting of this association was held on Tuesday, January 19th, and officers for the year 1915 were elected as follows: President, Dr. W. F. Mittendorf; first vice-president, Dr. Wendell C. Phillips; second vice-president, Dr. James W. Ingalls, of Brooklyn; recording secretary, Dr. A. Edward Davis; assistant secretary, Dr. Edward S. Peck; corresponding secretary, Dr. Ward B. Hoag; treasurer, Dr. J. Bentley Squier. The association has a membership of 2,400, with an age limit of forty-five years, a principal fund of \$90,000, chiefly invested in mortgages in New York property at 4½ and 5 per cent. The insurance is for \$1,000. The reserve fund of \$4,000 is kept with the State Insurance Department at 4 per cent. The affairs of the association are in good shape, especially in view of the somewhat depressing business conditions in the East.

Section Officers of the New York Academy of Medicine.—The officers of the various sections of the New York Academy of Medicine for the year 1915 are as follows: Dermatology and Syphilis, Dr. Charles M. Williams, chairman, Dr. Walter J. Heimann, secretary; Surgery, Dr. Clarence A. McWilliams, chairman, Dr. John Douglas, secretary; Neurology and Psychiatry, Dr. Israel Strauss, chairman, Dr. Foster Kennedy, secretary; Pediatrics, Dr. Walter L. Carr, chairman, Dr. Royal S. Haynes, secretary; Otolaryngology, Dr. C. D. Van Wagenen, chairman, Dr. John A. Robinson, secretary; Ophthalmology, Dr. H. H. Tyson, chairman, Dr. George H. Bell, secretary; Medicine, Dr. T. Stuart Hart, chairman, Dr. Nellis B. Foster, secretary; Genitourinary Diseases, Dr. Leo Buerger, chairman, Dr. A. R. Stevens, secretary; Orthopedic Surgery, Dr. Arthur H. Cilley, chairman, Dr. P. W. Roberts, secretary; Obstetrics and Gynecology, Dr. LeRoy Broun, chairman, Dr. George W. Kosmak, secretary; Laryngology and Rhinology, Dr. Hubert Arrowsmith, of Brooklyn, chairman, Dr. Francis W. White, secretary.

Relief Fund for Belgian Physicians.—The treasurer of the Committee of American Physicians for the Aid of the Belgian Profession has submitted the following report for the week ending January 23, 1915: Diplomatic arrangements have just been completed whereby drugs and instruments for civilian physicians may be sent into Belgium. Recent advices from Dr. Herbert Spencer, of London, show that our Belgian colleagues are literally starving. Three hundred additional boxes of food have been purchased at a cost of \$660. Contributions: Dr. W. A. Coventry, Duluth, Minn., \$10; Dr. A. William Reggio, Boston, \$25; Dr. Edward B. Heckel, Pittsburgh, \$25; Dr. T. R. Williams, Punxsutawney, Pa., \$10; Dr. J. Knox Simpson, Jacksonville, Fla., \$10; Sonoma County Medical Society, Sebastopol, Cal., \$50; Anonymous—E., Pittsburgh, \$10; Dr. A. B. Hirsh, Philadelphia, \$5; Dr. Henry Eastman, Pittsburgh, \$10; Dr. H. S. Steensland, Syracuse, N. Y., \$2; Washington County Medical Society, Marietta, Ohio, \$25; Dr. Lewis S. Pilcher, Brooklyn, \$25; Dr. M. Iverson, Stoughton, Wis., \$5; Dr. A. H. Traver, Albany, N. Y., \$5; Dr. Carl B. Drake, St. Paul, \$5; Dr. Leonard Freeman, Denver, \$5; Dr. Howard C. Taylor, New York, \$25; Dr. Walter F. Donaldson, Pittsburgh, \$5; Deer Lodge County Medical Society, Anaconda, Mont., \$75; Dr. W. S. Zimmerman, Spartansburg, S. C., \$10; Dr. H. MacVicker Smith, Pittsburgh, \$5; Dr. Ethel D. Brown, New York, \$5; Dr. Brown Pusey, Chicago, \$25. Total, \$377.

Previously reported receipts, \$1,414. Total receipts, \$1,791. Total disbursements, \$1,650. Balance, \$141.

F. F. SIMPSON, M. D., Treasurer.

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

November 9, 1914.

Treatment of Tetanus, by Hans Muehsam.—With the knowledge that the tetanus bacillus is anaerobic and that many of the pyogenic organisms which frequently accompany it in infected wounds consume oxygen and act as reducing agents which facilitate the growth of the tetanus bacilli, Muehsam has adopted a plan of treatment which seeks to prevent the multiplication of the tetanus organisms in the tissues. All loose tissue is cut away, thus removing a considerable nidus of infection. Then follow measures for the local destruction of the pyogenic organisms, and finally the direct attack on the tetanus bacilli. This is made by the continued application to the wound of hydrogen peroxide. In open wounds this is applied in the form of a solution which is changed often enough to keep the tissues a bright red. Where the wound is deep and small in diameter, Merck's perhydrit is repeatedly applied either in the form of a powder or preferably made into pencils which can be inserted into the canal and left to provide a constant supply of fresh nascent hydrogen peroxide. Warning is given against the use of other solid superoxides which also liberate nascent oxygen, on account of the fact that all of them simultaneously form irritant hydrates of their respective metals, some of which are even toxic. All precipitants of proteins are to be avoided because their action prevents the penetration of the nascent oxygen into the tissues. Irrespective of the peroxide used, the wound is to be dressed with it in contact with the tissues and the dressings changed very frequently to insure an abundance of free oxygen. This method has given excellent results in actual practice.

Causation of Renal Diabetes, by C. D. de-Langen.—Making a personally observed case the basis of his study of this subject, the author subjects the recorded observations of others to an analysis which leads him to conclude that, while the condition is uncommon, a true renal diabetes does occur. In this affection there is an increased permeability of the kidneys for sugar, less sugar in the blood than normal, and a complete absence of any relation between the amount of carbohydrate ingested and that appearing in the urine. Although in certain cases a previous nephritis may have been the starting point of the increased permeability for sugar, this is by no means always the case and frequently nephritis reduces the permeability to a point below normal. Nervous and toxic factors, however, play a greater role in causing this disease, and it is probable that there are certain toxins which may act on the human kidney in a manner analogous to phloridzin and, without damaging the organ, serve merely to increase its permeability for a longer or shorter period. It is important to recognize these cases of true renal diabetes, for they are of good prognosis and are free from the usual symptoms of diabetes. The fact that they are so rarely encountered is probably due to the absence of symptoms, but the accidental discovery of sugar in the urine of a candidate for life insurance, etc., should not

condemn him until it is established that the case is one of true diabetes.

November 16, 1914.

The Cure of Neuralgia and Neuritis with Bacterial Toxins, by Doellken.—It was observed that, in a few instances, a neuritis or neuralgia recovered promptly after the patient manifested a purulent infection. On the strength of this observation Doellken sought to determine its mechanism and its possible value. He found that vaccines made from killed cultures of certain organisms exerted some beneficial effect when given in large doses to patients with neuralgia or neuritis. He had previously proved that the effects observed were not due to the concomitant leucocytosis. Autolyzed vaccines of the same organisms gave somewhat better results than the simple vaccines and bacterial extracts, including tuberculin, showed a similar grade of beneficial action. But the best results were obtained when he used the toxins secreted during the growth of certain organisms. The most potent of these were found to be those from prodigiosus and staphylococcus, and when the toxins of these two organisms were mixed or given successively the optimum results were secured. The one seems to sensitize the other. This mixture has been called vaccineurin for convenience. It should be injected subcutaneously or intramuscularly, doses of from 0.02 to 0.06 c. c. being regarded as small, medium doses lying between 0.1 and 0.3 c. c., and those above 0.5 c. c. being considered large. Both local and general reactions are slight after these injections. If injected into a normal individual, doses of 0.03 c. c. of either staphylococcus or prodigiosus autolysate give no reaction, but these doses given together to a patient with neuritis produce a mild focal reaction in the affected part. A negative focal reaction was also noticed in some cases and consisted in the complete disappearance of all pain in the affected part in from one to two hours after the injection of 0.05 to 0.1 c. c. This usually lasted about ten to twelve hours. Similar reactions also occur in cases of neuralgia.

Impaired Nasal Breathing and Inhalation Tuberculosis, by Georg Finder and Lydia Rabowitzsch.—Guinea pigs were used for these experiments. Cotton was placed in both nostrils of some of the animals and hermetically sealed there by an application of collodion. The pigs were then paired, one with obstructed and one with normal nasal passages, and made to breathe air laden with a spray containing tubercle bacilli for a period of five minutes. After an interval they either died or were killed, and careful post mortem examinations were made, of their bodies, particularly of the lungs, upper respiratory passages, and associated lymph nodes. Though a considerable series of these experiments was made, it was impossible to draw any positive conclusions, but rather more of the pigs with normal nares were infected than of those with nasal occlusion. That these observations are in any way transferable to man is not held by the authors, for nasal obstruction in man is seldom complete, and the conditions for aerial infection are entirely different from those of the experiment. It does seem, however, that nasal obstruction does not enhance the probability of infection by inhalation.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

December 15, 1914.

Sputum in a Case of Ruptured Echinococcus Cyst of the Liver, by Edmund Maliwa.—The examination of the sputum showed it to be ochre yellow in color, mucopurulent, frothy, and, on standing, divided into two layers. The lower layer was brownish yellow and thick; the upper greenish brown, but not as viscid as the lower layer. The albumin content was very small. Both layers gave a negative reaction for bile. Microscopically an occasional leucocyte and erythrocyte was found—otherwise negative. The amount of expectoration amounted to about 1000 c. c. daily. The x ray showed the presence of a cavity directly under the diaphragm. The differential diagnosis was between a ruptured echinococcus cyst, an abscess of the liver and a cyst of the biliary passages. The absence of fever spoke against the presence of an abscess, and the fact that no echinococcus hooks or parts of the cyst were found made this diagnosis also unlikely. The patient manifested ascites; paracentesis of the abdomen was performed, and about 5500 c. c. of a light green, turbid fluid was removed which contained almost five per cent. albumin. The patient died in a very short time. The autopsy showed an alveolar echinococcus cyst of the right adrenal which had spread to the right kidney and to the liver.

A Case of Senile Gangrene Treated with Ultra-violet Rays, by Arthur Kriser.—A patient, aged sixty years, with a blood pressure of 165 mm., R. R., an accentuated second aortic sound, complained of pain in the big toe of the left foot for a period of six months. During the last three months a spot of dry gangrene had been present and the foot was edematous, the second and third toes sharing in the swelling and being immovable. The pulsation in the dorsalis pedis was absent. Operation had been advised. Treatment was begun, the exposures varying in duration from two to eight minutes and were made both anteriorly and posteriorly, the patient lying on his back and abdomen by turns. The distance of the tube varied from one metre to seventy cm. and the treatment was given at intervals of from one to five days depending upon the pain and other symptoms. In the course of the treatment the gangrenous spot separated, leaving a healthy granulating surface and the blood pressure was reduced. This reduction proved to be permanent. The pains were greatly improved. Edema appeared several times during the two months of treatment but receded in a few days when application of Burow's solution were made. This treatment is of distinct advantage in beginning gangrene due to arteriosclerosis.

House Cures in Gynecological Cases by Means of Alkaline Baths, by Ida Democh-Maurmcier.—Cases of dysmenorrhea, pain in the back and other symptoms as a result of antelexion, retroflexion, erosion of the cervix, prolapse of the uterus, ovaries and vagina, uterine myomata and other gynecological conditions were treated with massage and alkaline baths, the treatment being carried out in the patients' homes. Most of the patients showed decided improvement, the length of time they were under observation being two years. In myoma

uteri the tumors did not enlarge, the hemorrhage was improved and the tumors became more movable. Other conditions which also showed great improvement were parametritis, perimetritis, salpingo-oophoritis and endometritis. The patients were relieved of their symptoms although in some instances not thoroughly cured from the scientific standpoint. The hot baths should be given at a temperature of from 33 to 35° R. and the duration should be at least fifteen to twenty minutes. At the same time vaginal douches should be given. The baths should be given at intervals of two days and the bath should be followed by a period of rest in bed.

December 22, 1914.

Local Anesthesia in Vaginal Operations, by Ernst Ruge.—Injections of one to two per cent. novocaine, to which has been added adrenaline one in 1,000 in the proportion of five drops of adrenaline to 100 c. c. of novocaine are made into the tissue of the parametrium. A long needle is employed and is inserted at the highest points of the vaginal vault on both sides of the uterus and the direction is upward and slightly outward. If blood comes from the needle, it is withdrawn and its direction slightly changed. Then ten c. c. are injected, the needle being slightly withdrawn during this procedure. At times fifteen c. c. of the solution are necessary; at times, only six c. c. The lower half of the vagina, the clitoris and the labia are not affected. When these injections have been made operation can usually be begun in from twenty to twenty-five minutes. The anesthesia is of considerable duration. In one case in which the operation could not be started before one and a quarter hour after the injections had been made, the patient needed no further injection for an operation which lasted close on to an hour—an anesthetic period of two and a quarter hours. Under this form of anesthesia, vaginal hysterectomies and bladder and vaginal fixations for retroflexion have been performed. In a series of nineteen cases operated in which this method was employed, no untoward results were noted.

Etiology of Verrucose Endocarditis, by Edgar Reye.—This condition is seen most often in infectious diseases such as pneumonia, diphtheria, polyarthritic rheumatism and chorea minor; also in chronic diseases such as tuberculosis, chronic nephritis, carcinoma and syphilis. It is divided into mycotic and amycotic forms. In the first class are the acute necrotic or ulcerative cases; in the second are the cases of simple verrucose endocarditis. Common opinion is that the etiological factor is either toxic or bacterial. In only one class of cases, endocarditis rheumatica, is there a constant etiological factor. It is a diplococcus which closely resembles the streptococcus. The author examined a series of twenty-one cases of endocarditis and found this Gram positive diplococcus present in all.

Argobol, by Ernest Puppel.—This new silver preparation, a yellowish white insoluble powder, contains twenty per cent. silver in the form of silver phosphate. It has been used in gonorrhea, acute, subacute and chronic, in metritis and vaginitis due to *Bacillus coli*. Some of the acute cases of gonorrhea were cured without complications. The

average duration of treatment of acute gonorrhea was two months. The preparation is employed one to three times a week; it is omitted during the menstrual period, is indicated in all stages of gonorrhea, of purulent inflammations of vagina and uterus; in ectropion of the cervix with marked erosions where other treatment has failed. No irritation is caused. Argobol has the advantage over uranoblen (a preparation of silver and uranin which contains about forty per cent. silver) in that it does not stain the clothing and does not irritate. Hemorrhages and severe pain have been observed after the introduction of uranoblen bougies into the cervix and urethra.

December 26, 1914.

Treatment of Pneumococcic Sore Throat, by Erich Leschke.—Clinically, pneumococcic angina is seen in three forms: Follicular pneumococcic angina, pneumococcic influenza and septic pneumococcic angina, and pneumococcemia. The first affects particularly the tonsils; in the second and, especially, in the third form the local symptoms are overshadowed by the general symptoms. The prognosis even in the worst form is not very bad. The diagnosis is made bacteriologically, the Gram stain being of great importance. In the septic form, the pneumococcus is found in the blood. In the treatment of this condition optochin (ethylhydrocuprein) is used. It seems to have a specific action on the pneumococcus. It is given in the dose of 0.4 gram three times daily, after meals. On account of its taste it is prescribed in wafers. It has an antipyretic action only in pneumococcic conditions; when administered in other infections the temperature is not influenced.

Disturbance of Growth and Deformity, by Max Herz.—A boy aged fifteen years presented himself with a deformity of the left hand. The deformity consisted of manus valgus, the hand forming an angle with the lower end of the radius, and the left forearm measuring 1.5 cm. shorter than the right. The history given was that of falling on the hand ten years previously. Swelling and pain were present for a few days at the time but the patient received no medical attention. X ray picture showed that the lateral (the radial) half of the epiphyseal zone of the radius had ossified prematurely. The other half continued to grow and gave the appearance of a bony spur. The epiphysis grew normally as it was of the same size and shape as that of the right side. There was a deficient production of bone in the diaphyseal end, more marked in the radial half. The median half of the radius which enters into the formation of the spur was on a level with the epiphysis of the ulna, while, normally, it should be somewhat lower. At the time of the accident through hemorrhage and pressure a row of cartilage cells was destroyed. These were probably in the middle of the epiphyseal line or somewhat proximal, as the distal side did not share in the disturbance, the epiphyseal line being normal and the changes being most marked in the median half of the diaphyseal end.

Determination of Sodium Chloride in the Urine, by K. Wunder.—To determine the amount of sodium chloride in a specimen of urine, one c. c. of urine is drawn up into a pipette and placed in a porcelain dish, five c. c. of a mixture of equal parts of

sulphate of iron and ammonium solution and nitric acid (which is used as an indicator) are added; then ten c. c. of distilled water and one c. c. one in ten ammonium sulphocyanide solution. A brown color appears. One c. c. of one in ten silver nitrate solution is added and then one in ten silver nitrate solution is dropped from a burette, with constant stirring, until the solution is colorless. The number of drops used multiplied by 0.0244 gives the percentage of sodium chloride in the urine. By this method the determination of sodium chloride can be carried out quickly and accurately, the limit of error being usually not greater than is accounted for by one drop (0.0244 per cent.).

PRESSE MÉDICALE.

December 10, 1914.

Importance of Early Treatment in Paroxysmal Tachycardia, by H. Godlewski.—Histories of cases of paroxysmal tachycardia met with in military practice are given; the benefit of early treatment is emphasized. Men, in whom the myocardium had never been suspected of weakness, were not infrequently observed to have tachycardia, small pulse, and even sometimes cyanosis when on the march. In some cases in which treatment could not be immediately applied, the tachycardial attack persisted, the heart muscle grew feeble, and relegation to hospitals of the second line became necessary. In two promptly treated cases referred to by Godlewski, tachycardia had appeared suddenly at some interval after the termination of an arduous day's march, while the men were resting. Each patient was seen a few minutes after the beginning of his attack, and was given to swallow, without mastication, a large piece of soft bread, slightly dried. In both instances the pulse rate immediately dropped from 130 or 140 to about seventy-five a minute, and remained constantly at the latter figure. In one case a slight presystolic murmur was subsequently heard; but the man was in no way incapacitated from active fighting. Attention is called to the fact that whereas, if the simple procedure referred to, is applied soon after the beginning of tachycardia, irritation of the vagi caused by sudden distention of the esophagus will usually overcome the tachycardia by partially inhibiting the heart, vagal excitation practised after the condition has existed for some time loses its power to slow the heart, and digitalis is then the only resource for restoring the energy of the heart beat.

Treatment of Cholera with Epinephrine, by Naamé.—The various symptoms of cholera, e. g., vomiting, sweating, cramps, diarrhea, and low arterial tension, appear to the author, after clinical experience with these cases, to be due to a selective action of the toxins of the disease on the adrenal glands. The initial stage is termed by him the intestinal or bacillary stage, and is considered free from danger, whereas the second stage is termed the adrenal stage, and frequently ends in death. A high degree of tolerance for epinephrine was noted in cholera, and this appears to Naamé to indicate that in administering this agent one is restoring to the organism a principle of which it had become deprived by the action of cholera toxin on the adrenals. He recommends the giving of four to six mgm. of epinephrine daily for several days, in con-

junction with saline solution where there has been much loss of fluid. Such drugs as cocaine and morphine should be avoided, as the reduction in adrenal function renders the system more liable to intoxication by these agents. In the adrenal stage, moving the patient from place to place is also inadvisable. Naamé insists that epinephrine treatment in cholera is causal rather than symptomatic, and refers to twenty cases in which recovery could be definitely ascribed to its use. A plea is made for the employment of organotherapy in conjunction with serum therapy (when available) in the treatment of infections in general, especially where there is evidence of deficient function of any particular organ.

RIFORMA MEDICA.

January 2, 1915.

Appendicitis, by G. Rummo.—This condition is frequently confounded with renal colic, gallstones, hip disease, inflammation of the uterine annexa, acute psoas myositis, perinephritic abscess, and typhoid. In acute cases operation should be done in the first thirty-six or forty-eight hours; otherwise, he advises waiting in uncomplicated cases for the subsidence of the acute inflammation. During this waiting period medical treatment should be used, and stimulation of peristalsis by purgation should be avoided. In his own cases Rummo gives opium by mouth, beginning with 0.01 gram daily, and increasing even to 0.15 gram to control pain, while in certain cases it is necessary to resort to morphine and heroine.

Apparatus for Control of Sphygmomanometers, by V. Maragliano.—A detailed illustrated description is given of an apparatus devised by the writer, which he says gives control of the kinetic energy of each pulsation, and also of pressure. These two factors may be controlled either jointly or separately.

Vaccines from Bacteria Exposed to Ultraviolet Rays, by R. Lanzillotta.—Emulsions of bacteria in physiological saline solution were exposed to the rays for from fifteen to forty minutes, and then inoculated into animals. At the same time broth cultures were made and incubated to determine whether or not the power of growth had been destroyed. The injections into animals were repeated at intervals of five days, and then after from five to ten injections of the vaccines, inoculation was made with a virulent culture of the same organism to determine the presence or absence of immunity. The results of this series of experiments make it apparently certain that the reproductive power of bacteria can be destroyed by exposure to the ultraviolet rays, preserving, however, to the maximum, the specific properties of the proteins which serve as antigens. The drawbacks to the method are difficulty of standardizing the time of irradiation, and the necessity of making a homogeneous emulsion in order to insure penetration of the rays. The penetrating power of the rays on protein substances is weak, and, consequently if there are masses of bacteria in the emulsion, the outer layers may protect the deeper ones, and thus preserve their virulence. The animal experiments proved these facts.

Clinical Application of Abderhalden's Theory, by A. Jappelli.—In using Abderhalden's test in the

diagnosis of pregnancy, negative results are of more value than positive. A negative result excludes pregnancy with certainty, while a positive reaction may be due to some other cause. The fact that certain morbid conditions may give a positive reaction limits the practical application of the test. According to Pinard this method of diagnosis of pregnancy does not give results which justify its superseding clinical methods.

BRITISH MEDICAL JOURNAL.

January 9, 1915.

Treatment of Infantile Paralysis, by William MacKenzie.—The pathology is a lesion mainly of the anterior horn cells of the spinal cord; with the conclusions based on this pathology the author is in almost complete disagreement. He contends that the cells are not irreparably damaged in many cases. Little attention has been given to the muscles secondarily affected, yet the muscles are biologically antecedent to the nerve tissue which governs them, and through them the restoration of the nerve tissues should be undertaken. The usual method of testing the involved muscle or muscles is too severe to lead to any useful conclusions and is wrong in principle. Instead of condemning a muscle as totally paralyzed because it is incapable of performing any work when tested at the greatest possible disadvantage to itself, one should carefully determine its residual capacity by testing it in its zero position. The zero position is that which corresponds to a position of the part into which it would normally be brought by the maximum contraction of the normal muscle or, in other words, the position of greatest relaxation of the damaged muscle. This position is to be secured by passive movement. In this position it will usually be found that even the most damaged muscle is still capable of contracting, although possibly very slightly. The treatment should then be based on these biological facts and should proceed as follows. During the acute stage of the disease the affected part should be maintained constantly in the zero position, both to prevent over stretching of the damaged muscles and contraction of the unaffected opponents. When the acute stage has passed the reeducation of the affected muscle and its controlling damaged nerve cells should be undertaken and pursued unrelentingly for a long period of time. This reeducation should begin by encouraging voluntary contraction of the muscle in its zero position, very gradually encouraging its development so that it becomes able to move the extremity from a position more and more removed from zero. Finally this will lead to almost, if not quite complete restoration of the function and strength of the most severely damaged muscles and cells. In old cases certain surgical measures may be needed to free the muscles from mechanical interference, but usually surgical measures should not be practised, particularly those of nerve or muscle grafting.

Anomalous Case of Enteric Fever in an Inoculated Subject, by E. A. Bourke and Sydney Rowland.—Eight months and just before the onset of his illness the patient had been vaccinated against typhoid fever. He had a mild febrile attack which was undiagnosed and which lasted but

a few days. This recurred and progressed with increasing severity and a high fever, finally resulting in intestinal hemorrhages and death from cardiac failure. Shortly before death the urine was found to contain large numbers of typhoid bacilli. The autopsy showed many typically involved Peyer's patches and an inflamed gallbladder from which typhoid bacilli were isolated in pure culture.

Appendicitis Treated with Anticolon Bacillus Serum and Vaccine, by A. Cowan Guthrie.—Twenty-two cases of severe appendicitis were successfully treated by the primary injection of ten c. c. of anticolon serum in each of two places subcutaneously. A few days later each case received 100 million colon bacilli in a vaccine. The most striking feature of the treatment was the almost immediate relief of the pain and abdominal rigidity following the use of the serum.

LANCET.

January 9, 1915.

Some Conditions that Simulate Chronic Appendicitis, by John Morley.—Lane's ileac band is capable of giving rise to symptoms almost indistinguishable from those of chronic appendicitis, but the frequency of the band and particularly of the symptoms which may result from its presence are greatly exaggerated and it is uncommon to find it simulating chronic appendicitis. Jackson's pericolic membrane may also give rise to these symptoms, not from tying the gut down, but rather from the fact that it is associated with an abnormal degree of mobility of the intestine which may lead to a certain degree of torsion and stasis. Mobile proximal colon, even when unassociated with the pericolic membrane may give rise to similar symptoms. Inflammatory bands and adhesions may also produce these symptoms. But the commonest cause of manifestations simulating chronic appendicitis is encountered in women and is the presence of right sided tubal and ovarian disease of a chronic character. In a large proportion of these cases which present the symptoms of chronic appendicitis, an etiological diagnosis is practically impossible, but in a small number a careful study of the case may lead to a correct estimation of its underlying cause.

Value of Tuberculin as an Addition to Sanatorium Treatment, by Noel D. Bardswell.—It is admittedly difficult to estimate the value of tuberculin as a remedial agent, primarily because cases in which it is used must of necessity be more or less selected. In early cases of tuberculosis without bacilli in the sputum the results are equally favorable from treatment with or without tuberculin. In a series of cases in which there were bacilli in the sputum the use of tuberculin did not seem to have any appreciable effect, but of five per cent. more cases the organisms disappeared from the sputum. One may state that tuberculin is a remedy from which we cannot expect any strikingly beneficial results. It cannot be regarded as a cure in the usual meaning of the word, and any effects which it may produce of a beneficial nature are almost imperceptible and are manifest only after a long time. It is only in the cases with a favorable outlook under any conditions that we may expect material help from tuberculin. It will not convert an unfavorable case

into a favorable one. It is obvious from these statements that tuberculin cannot be considered a suitable routine remedy in tuberculosis. Special attention is called to the necessity of using tuberculin in such a way as to avoid all reactions in the course of treatment. This is the more important because the reaction cannot be controlled; even slight reactions retard recovery. The author has even seen such mild reactions, as far as immediate symptoms were concerned, lead to a marked exacerbation. With regard to the diagnostic use of tuberculin, neither the general nor the focal reaction which may be produced, is of any diagnostic value other than to indicate that the patient has at some time been infected by the tubercle bacillus. On the other hand, the test is of the greatest value in positively excluding tuberculosis when it fails to give any reaction.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

December, 1914.

Chloroform Anesthesia, by John' Stewart.—When chloroform is properly given, it is the most convenient, most manageable, most universally applicable, and safest of anesthetics. There is a right and a wrong way to give chloroform. The rule "Plenty of air and plenty of chloroform" should be followed. The anesthetist must not be nervous, he must have the courage to give the chloroform freely, not too slowly, and to attend strictly to the respiration. Timidity is as dangerous as recklessness, for danger lies in giving too little. He cites as an example the reputation of the drug in London and in Edinburgh. In London it was administered by a professional anesthetist, with an ingenious apparatus, studying the heart and pulse with great care, and was notoriously dangerous. In Edinburgh it was given by a student whose sole apparatus was a towel and a pound bottle of chloroform, who never troubled about the patient's heart, did not feel the pulse, and approached his task with cheerful and unhesitating confidence, without a death in nineteen years. Statistics of deaths from chloroform and ether give no information as to the way in which they were administered, and are therefore not reliable.

Complement Fixation Test in Gonorrhea, by J. J. Ower.—The statements of recent investigators are justified. The test is specific and a positive reaction with a proper technic indicates the presence of a gonorrheal lesion. Negative results are not as valuable; as many serums from cases undoubtedly gonorrheal give negative fixation tests, e. g., in acute urethritis, where the reaction is practically always negative.

BOSTON MEDICAL AND SURGICAL JOURNAL.

January 14, 1915.

The Treatment of Pneumonia in Children, by Harold W. Dana.—The routine followed by Dana is: 1. Fresh air constantly. Often, in winter, a child can be kept better covered and warmer if it is bundled fairly tightly into a baby carriage, or a clothes basket, placed near an open window, than if it is kept in bed. 2. Food. By taking the necessary time and trouble small amounts of liquids, or partly solid food can be given to any child, and if repeated often, considerable nourishment can be given. The

mother frequently thinks the fact that the sick child does not wish food to be a sufficient reason for not giving it any. 3. Saline enemata. Long, slow, hot normal saline irrigations of the bowels once or twice a day are useful as a means of stimulation, to give water to the body, to reduce toxemia, and for cleansing purposes. In case of distention or constipation calomel may be given in divided doses when needed. 4. Cold applications to the chest, by wringing cloths out of cold water, applying them to the skin, covered to protect the clothes, and renewed when they become warm. 5. Bathing. A tepid sponge bath, preferably followed by an alcohol rub, twice daily if the temperature reaches 102° F. 6. Brandy. When the temperature is high or long continued, twenty to fifty drops of brandy every two hours for a child one to three years old. It is better not to give it with food as it may make the child vomit, or make the food objectionable. 7. Anti-streptococcus serum was given apparently with brilliant results in one case in which he suspected a streptococcus septicemia. 8. The drugs used were ammonium chloride and syrup of ipecac, using the fluidextract of glycyrrhiza as a vehicle, tincture of belladonna when the child was very sick, and in case of need, tincture of digitalis and strychnine sulphate.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

January 16, 1915.

Various Types of Lues; a Clinical and Laboratory Study, by W. E. Robertson and J. V. Klauder.—This paper was abstracted in our issue for July 4th, page 48.

Renal Infection: A Further Experimental Study of Its Relation to Impaired Ureteric Function, by W. H. Barber and J. W. Draper.—Given an infected bladder, and making due allowance for systemic and local resistance, the uterovesical valves can be cut without resulting renal infection, the duration of life being indefinite. If the ureter is circumcised to, but not through the vesical mucosa, the kidney remains normal. Ureteral traumatism causing greater or lesser impairment of function, indicated by prostatic paralysis, in seventy-five per cent. of cases resulted in hydronephrosis, without infection in the early stages; a mechanically changed kidney which might or might not become infected later. Here the average duration of life was 30.33 days. If the valves were cut and ureters paralyzed, hydronephrosis did not occur, but the kidneys underwent a primary infective change in fifty per cent. of cases; the average duration of life being 13.57 days. The integrity of the factor of safety, which protects the kidneys from both urogenous infection and hydropic degeneration, appears to depend directly on the unimpaired prestalsis of the ureter, indirectly on the integrity of the uterovesical valve, and on the relationship between these physiological and anatomical barriers.

Hematogenous Kidney Infections, by Granville MacGowan.—These infections are simple metastases; many are acute and persistent, and likely to lead to formation of multiple abscesses in the kidney tissue—often rapidly destroying the kidney, as well as the life of the patient. In early diagnosis, one has to depend more on exclusion than on direct

symptoms, which are essentially abdominal and such as may be due to various other conditions. The most prominent symptom beside fever is marked tenderness at the costovertebral angle; fever is continued or remittent according to the agent of infection, the clue to which is not always given by the urine. If the case is advanced or serious, the urine from the infected kidney will contain leucocytes or pus, and there will be a leucocytosis up to, but not usually over 25,000. When the pelvis of the kidney alone is infected, there is local tenderness, and from the beginning the urine obtained with a ureteral catheter will show the presence of pus and pus producing organisms, the nature of which can be ascertained by culture on an appropriate medium. Acute attacks of staphylococcic and streptococcic nephritis are most frequent. From a therapeutic standpoint, the infections may be divided into three classes: First, those which cure themselves under an abundant use of pure water, vaccines, diet, rest, hexamethylenamine, potassium citrate, and mild vegetable diuretic. Secondly, where the kidney is the seat of multiple superficial bacterial infarcts and abscesses, requiring incision, decapsulation, evacuation of visible pus foci, and drainage. Third, the malignant or explosive types, characterized by marked depression and toxemia. If the condition is unilateral, as is usually the case, nephrectomy is the only remedy. Colon bacillus infection is the most frequent of the hemic infections of the kidney. It is often preceded or accompanied by acute infective processes in the abdominal cavity, and there is always pain and tenderness over one or both kidneys, with a cloudy acid urine showing motile bacilli and pus. Some cases are entirely amenable to medical treatment, which should consist of large doses of salol, restricted diet, plenty of distilled water, rest in bed, and hot applications. More serious ones will frequently yield to lavage of the pelvis of the affected kidney, in addition to the medical measures; but in a considerable number the colon bacillus will not disappear from the urine without prolonged drainage of the entire urinary system by means of a retention catheter. Pyelitis gravidarum and renal tuberculosis are also dealt with by the author.

Autogenous Vaccines in the Treatment of Sciatica, by F. C. Zapffe.—The vaccine treatment of sciatica has not received the attention it deserves. Little is said about it in textbooks, and only gonococcus vaccine is mentioned. The source of infection, the infection focus, must be determined. It usually can be found by patient, persistent search, and when it has been discovered, a vaccine is easily obtained. In a successful case which Zapffe reports a mixed vaccine was employed which was made from a culture of staphylococci and a diphtheroid bacillus found in the urine.

MEDICAL RECORD.

January 16, 1915.

Scientific Knowledge Logically Applied to Acute Gonorrhea in the Male Urethra, by G. S. Peterkin.—There is no specific drug nor means of treatment for gonorrhea; treatment will be more successful if such an idea is given up, the disease studied individually. The fundamental object is the relief of congestion in the area affected; this

necessarily includes stimulation of the circulation, destruction of invading bacteria, etc. Causes tending to increase congestion or retard circulation may be summed up in the word irritation; irritation may be mechanical, and nervous, chemical, or bacterial. Factors in mechanical irritation are gravity, to be combated by rest in bed or in a modified Trendelenburg posture; exposure to sudden variations in temperature; constipation. The following foods are forbidden: Rich gravies, strong condiments, fried foods, hard boiled eggs, bananas, new bread, sweet potatoes, rhubarb, tomatoes, asparagus, and alcoholic stimulants. Chemical irritation should be treated medicinally, preferably with pure sandalwood oil, fluidextract of zea, two teaspoonfuls every two hours, or sodium bicarbonate, one teaspoonful every four hours. For bacterial irritation the remedies are as follows: 1. Sitz baths. 2. Local application of heat. 3. Drainage. If the patient is circumcised, the meatus and head of the penis should be protected by a moist dressing of boric acid, to be frequently changed, which is kept in place with a suspensory or a lightly applied bandage retained by an elastic band. If the meatus is exceptionally small, it should be opened. 4. Cleansing of the anterior urethra. By means of a bulb, not a piston syringe, the force of which can be regulated by the operator, the patient should use boric acid solution, or plain water, as hot as can be borne, every two hours during the day and every three or four hours at night, after first soaking the penis. When the infection extends beyond the sphincter, hydrostatic irrigation, which permits the fluid to enter the bladder, and thus cleanse the posterior urethra, should be substituted. The patient should irrigate himself, but not until he has received detailed instructions and attained proficiency in the procedure—otherwise traumatism may be caused. As yet, no drug is known which is bacteriotropic for the gonococcus and nonorganotropic for the epithelial cells; therefore, until all acute swelling (edema) of the mucous membrane has subsided there should be no local medication except boric acid solution or hot water. Later, possibly some albuminous silver salt, because it is nonirritating in fairly strong solutions, may be employed. Using as a basis of comparison the daily observation, macroscopically and microscopically, of the urine held for a definite time (four hours) in a number of normal individuals under varying hygienic conditions, daily examination of the urine held for a like period in cases of specific infection will enable one to ascertain with certainty the progress of the disease, efficiency of treatment, whether instructions given are carried out correctly. Treatment based on such logical experience will produce the greatest percentage of results, since it is rational, varies with the individual, and is not empirical.

Vaccines in Relation to Mouth Infection, by Joseph Head.—In the systemic treatment of mouth infection, a judiciously selected vaccine gives most excellent results; but since the local and general treatment should always be employed in conjunction, it is often difficult to determine the exact proportion of credit for the cure that should be given to each. The author is strongly convinced that as a rule properly selected vaccines cause a healing and permanence of result which are impossible with local treatment alone. In fact, the results of vaccine

treatment are usually cumulative, as shown by the continued improvement in the local conditions for as much as a year after the conclusion of the course of such treatment.

ANNALS OF SURGERY.

November, 1914.

Sarcoma of the Long Bones, by William B. Coley.—In a considerable proportion of his own cases, pain has been the first symptom of the disease, preceding the development of the tumor. Pain may vary in character, but it is usually a deep seated, boring pain, worse at night, or after using the limb. After a tumor has developed to sufficient size to be palpable, there is generally the sign of local heat, and in not a few instances, there may be a general rise of temperature, up to 101° F. or 102° F. The locality of the tumor may be of considerable help in the diagnosis, particularly between sarcoma and tuberculosis. Sarcoma very rarely, in the early stages at least, involves the joint or synovial membrane. It may be differentiated from an exostosis or osteoma, by the fact that the latter is of slower growth, is usually without pain, is harder and more uniform as to consistence, and is very apt to be pedunculated.

Appendicectomy Without Mortality, by W. B. Brinsmade.—A series of 110 cases of appendicitis without mortality. The operator employs the routine method in removing the appendix. When free pus is present with extensive peritonitis, it is sponged out whenever seen. One or two long straight retractors are then passed into the pelvis and the patient is tilted to the right side. This procedure sometimes allows the removal of several ounces of pus, without passing sponges into the pelvis. This is all done rapidly and gently by the operator and no attempt is made to investigate further. One or more drains are placed in position and the wound is partially closed. He never irrigates or puts peroxide or ether or any other chemical to the abdomen. Soft rubber drains or iodoform gauze covered with green gutta percha are employed. No rubber tubing or gauze is left in contact with the intestines. No one but the operator is allowed to put his hand or finger inside the abdomen. The cases with marked vomiting and in all cases with free pus and extensive peritonitis, the stomach is washed in the operating room as soon as the binder is put on. Most of the patients are placed in the Fowler position at once, followed by hypodermoclysis when indicated. The Murphy drip is used in a large proportion of cases. One dose of a quarter of a grain of morphine is given if pain is severe, and may be repeated with a second dose of an eighth of a grain, to insure the patient a comfortable night following the operation. Nothing is allowed by mouth, even water for twenty-four hours in the severe cases, and nothing by mouth in any case for twelve hours. No morphine is allowed after drink or food is taken by mouth. After thirty-six or forty-eight hours, the patients receive a low enema. If that is satisfactory, no further attention is paid to the bowels for twenty-four hours, when one dose of three grains of calomel and ten grains of bicarbonate of sodium is given, followed in half an hour by a Seidlitz powder. The main standby in the bad cases is the stomach tube. At the first sign of regurgita-

tion of bile or dilatation of the stomach or continued vomiting, or even hiccough, the stomach is washed out until the water turns clear.

Proceedings of Societies.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Twenty-seventh Annual Meeting, Held at Asheville, North Carolina, December 15, 16, and 17, 1914.

The President, Dr. JOHN WESLEY LONG, of Greensboro, North Carolina, in the Chair.

(Continued from page 181.)

Massive Umbilical and Ventral Hernias.—Dr. ALEXIUS MCGLENNAN, of Baltimore, in a series of twenty-six cases, had found four strangulated hernias. Two of the patients died. Of the remaining twenty-two, nonstrangulated cases, one patient died on the second day from dilatation of the heart. Sixteen patients were handicapped by lesions other than the hernia. There were six heart lesions, six renal, two of arteriosclerosis, and two of obesity. The average duration of confinement to bed after operation for inguinal hernia was twelve days, and the stay in the hospital nineteen days. After massive hernia, the average was thirty-one days in bed and forty-eight days in the hospital, the extremes varying between twenty-one and 125 days. The post-operative treatment was that usually employed after laparotomy, with special treatment of any handicap on the part of the individual patient. Practically all these patients required washing out of the stomach for the relief of distention during the first twenty-four hours after operation.

Treatment of Angiomata by the Injection of Boiling Water (Wyeth Method).—Dr. FRANCIS REDER, of St. Louis, stated that the face was the favorite locality of these neoplasms, two thirds of the growths being on the brow and cheek; next in frequency came the lips, the nose, the ears, and the eye lids. Females were more prone to this affliction than males. Two thirds of all cases occurred in females. In a series of twenty-six cases which had been subjected to this treatment, he had no failures to record. In every instance the results had been gratifying. Most patients presented the lesion upon the face and scalp. Four presented angiomata upon the tongue, ranging from the size of a filbert to that of an English walnut. One presented the lesion upon the left gluteal region as large as a cocoanut; another patient, a man eighteen years of age, presented a fusiform angioma upon the right middle finger between the second phalangeal articulation and the knuckle. This tumor caused great pain. The introduction of the needle and the force applied in injecting the hot water were of great importance. The quantity of hot water which might be injected at one sitting would amount to three or four ounces in a tumor the size of a hen's egg, the time consumed in making the injection being about ten minutes. If the new growth was of unusual size, it was advisable to inject only a portion of the tumor at one time, making a subse-

quent injection two or three weeks later. It was a wise precaution to apply ice or very cold compresses to the tumor and surrounding tissues immediately after the injection for the first four to six hours, thereby lessening the severity of the edema. The course of an angioma successfully injected was one of gradual diminution, the greatest progress being made from the second to the third week. A tumor the size of a hen's egg usually required six or eight weeks for its disappearance.

Operative Treatment of Fractures.—Dr. W. R. JACKSON, of Mobile, stated that plates should be placed on the fleshy side of the limb. Screws should fit snugly and hold the plate tightly to the bone, as motion would prevent union. According to Lane, necessity for removing a plate meant faulty technic. It was not always necessary to remove a plate when infection occurred. Plating of bone did not always mean union, as bony union failed to occur sometimes even after intraosseous transplants were used. These were nonunion cases. Shortening of limb and limping always followed the plating of old or ancient fractures because of the necessary resection of fragments.

Dr. H. STUART MACLEAN, of Richmond, stated that when a Lane plate had first been properly and firmly applied it was intended to maintain from the start close and accurate approximation of the fractured ends. This very fact of rigidity tended to bring about delayed union or nonunion. It was well known that in the process of healing of a transverse fracture of a long bone, the natural result was a slight degree of shortening, which was explained by absorption of bone tissue from both the fractured ends. It followed then that with the rigidly and accurately applied Lane plate the attrition and absorption in the fractured ends gave a degree of actual separation of the ends in from two to four weeks which was as firmly maintained as was the accurate approximation when the plate was first applied. To overcome this difficulty the author had the plates made with an oblong opening in one end instead of the usual round opening for the screw. When the plate was applied, the screws were placed at the distal end of the oblong opening, and as attrition and absorption occurred, the action of the muscles along the line of fracture caused the approximation to be continued by the slipping of the screws in the oblong slot. This plate had given more satisfactory results than the original plates, and x ray pictures showed that the screws did slip in this slot from one third to the entire length of the opening.

New Facts about Cancer and Their Clinical Significance.—Dr. WILLIAM CARPENTER MACCARTY, of Rochester, Minnesota, stated that, in 1910, he presented the first observations which tended to refute the origin of cancer in prenatal and postnatal rests. At that time the stages of epithelial hyperplasia were described as primary, secondary, and tertiary. In 1913, the practical application of these terms to neoplastic conditions in the mammary gland was presented. The object of the investigations had been the establishment of a scientific histological basis for clinical experience, relative to benign, malignant, and doubtful tumors of epithelial origin, and to suggest clinical, prognostic, and operative procedures, which would be

standard for the pathologist, clinician, and surgeon and by which means needless, meaningless, confusing terminology and unnecessary radical operations might be avoided.

Since the terminology adopted as a result of those investigations had proved satisfactory and very simple in the case of mammary neoplasms, it had been deemed advisable to extend the observations to other organs. The prostate, skin, and stomach had conformed absolutely to the facts and terminology, and he took this opportunity of presenting some facts relative to histogenesis of cancer of the stomach and to point out, that in so far as the skin, prostate, and stomach were concerned, the three cytological pictures and their terminology might be utilized in establishing a clearer understanding between the pathologist, clinician, and surgeon in clearly defining benign, doubtful, and malignant epithelial growths.

The proposed method, however, involved the undemonstrated danger of spreading a malignant disease by wide excision, both pathologist and surgeon agreeing that incision of neoplasms was bad and dangerous practice. In doubtful cases wide excision produced a specimen which might be classified under three distinct and definite histological headings, each having a definite clinical significance and forming the basis of accurately defining the doubtful group of cases, which might be studied with the object of settling the correct operative procedure and the curative effect of operative surgery in its relation to epithelial neoplasms.

It might be suggested, therefore, that such a specimen, when removed by wide excision, be classified as primary epithelial hyperplasia, secondary hyperplasia, or tertiary hyperplasia, the first being benign, the second being doubtful, and the third being malignant. With their present knowledge, the first required only excision, if any surgical treatment, the second wide excision, and the third complete or radical removal. In case the pathologist reported secondary hyperplasia, wide excision only was justifiable. It was this group which needed careful study, because the exact outcome of such a condition could be accurately determined only by the postoperative histories. This fact, it seemed to him, put the problem into a field of research which belonged to the surgeon, and forced him to standardize his operative procedures to histological findings. It could be only by such standardization that the surgical pathologist, the clinician, and surgeon would be able scientifically to cooperate in their efforts to render justice to the patient.

Letters to the Editors.

TRACHOMA IN NEW YORK PUBLIC SCHOOLS.

NEW YORK, January 22, 1915.

To the Editors:

In an editorial article in the NEW YORK MEDICAL JOURNAL for January 9, 1915, entitled Trachoma and the Public Health, in which King's work on Trachoma in Porto Rico is discussed, the following statement is made: "The trachomatous can be segregated in special schools or rooms, and while this method, under existent conditions, would doubtless be resisted, yet resistance might be overcome by tact, patience, and judgment. Probably it would cause hardship to few and prove beneficial to many, more

especially if, as is easily possible, medical care and treatment were also available at schools."

I wish to state that under the cooperation of the Department of Education and the Department of Health, in the lower East Side district, the "trachomatous pupils" have been segregated in a special ophthalmia school for the last three years or more with perfect success. In our report (*Jour. Inf. Dis.*, xiv, 261, 1914) Doctor von Sholly, in charge of the medical side of the clinic and school, describes this work as follows: "In October, 1912, two classes in close connection with a health department eye clinic were started in the lower East Side at Hester and Allen Streets as an annex to Public School 65. One wing of a vacated school building was fitted out by the Department of Education. On the ground floor is the playground, one flight up, two clinic rooms and a demonstration room, and above these, two classrooms and a washroom. The classrooms each seat from fifteen to seventeen children. The washroom contains a porcelain wash basin with a goose-neck faucet worked by a foot lever, so that the child touches no part with its hands. All washing is done with running water. There is also a bubbling drinking fountain of porcelain worked by a foot lever.

"Three days a week, a health department clinic is held in this building. All children with eye disease from some sixty adjoining public and parochial schools are either sent or brought in squads for treatment by the school nurse. The children who formerly would have been excluded, are transferred without delay to the infectious eye disease classes. The principals of their respective schools are notified by printed postcard.

"The mild cases of folliculosis are instructed to use boric acid drops at home and are placed under the school nurse's observation. If these cases become marked or show secretion, they are referred back to the clinic. The marked cases of folliculosis are treated at the clinic one or more times a week, chiefly with bichloride of mercury rubbings. Other cases, such as blepharitis, keratitis, etc., needing treatment, report to the clinic as heretofore. The children are given cards with the diagnosis stamped on them for the information of the school nurse who has typed instructions as to what course to pursue.

"The children retained in the special classes are treated according to prescribed directions of the clinic doctor, twice a day, by the special nurse assigned to duty at the ophthalmia school. *Medication formerly left to the child's discretion for use at home is thus given in the school.* Now we know that the child receives this treatment. If the child absents himself from school, the truant officer is sent for him.

"In addition to actually taking care of the eyes, the nurse in attendance teaches the children personal, family, and social hygiene by talks, demonstrations, and quizzes. In the demonstration room (furnished in simple fashion as a sanitary bedroom), demonstrations on domestic hygiene and the care of the eyes are given to the mothers. The children are taught the value of cleanliness. They are obliged to keep their hands and nails clean, and are taught not to rub their eyes with their hands or wipe them with their coat sleeves or caps. Their hands and persons are inspected daily, and as a reward for cleanliness honor buttons are given them. At the end of the term, the child who has the best marks for cleanliness receives a small manicure set. At the end of the school day, each child washes his own desk and chair with soap and water. This is done chiefly for its educational value.

"The school is unique among New York city schools in the matter of cleanliness. The clinic room, the corridors, and stairs are mopped up daily. The waiting room and schoolrooms are wet swept daily and scrubbed three times a week. The toilets, balusters, and side walls as high as the tallest child can reach are wiped down daily with a disinfectant. The chairs and desks in the classroom are wiped down with a disinfectant after the children have washed them with soap and water.

"While we were negotiating with the Department of Education for the formation of the special ophthalmic classes, an opportunity to open an infectious eye disease clinic in Public School 21 was offered. This school is in the congested Italian district somewhat remote from the health department infectious eye disease clinic then at Gouverneur Slip. As an experiment, this clinic was opened during January, 1912, in a room set aside on the second floor in the school building. Clinics are held twice a week

during the morning school hours, to which come not only the children of Public School 21, but also children from the neighboring public and parochial schools. An exceptionally competent nurse was placed in charge to carry out the prescribed treatments twice a day, as in the ophthalmia school at Hester and Allen Streets. Children with acute conjunctivitis, phlyctenular conjunctivitis, follicular conjunctivitis, papillary conjunctivitis, in fact all children with conjunctival secretion who in Public School 65 clinic would be placed in the special class, either are excluded temporarily with instructions to report to this school clinic twice a day for treatment, or, if secretion is slight, are placed in their regular classroom at a desk somewhat apart from the other children. Directions for avoiding the conveyance of the disease are given to the child and to the teacher. The chair and the desk which the child occupies are washed with antiseptic solution after school and the balusters leading to the clinic room are washed daily with an antiseptic after each clinic is held. Through the exceptional personality and cooperation of the principal of the school, and of the nurse in charge, we have had absolutely no difficulty in keeping the children under control. The excluded cases which are becoming fewer and fewer in number, are reported faithfully to the clinic twice a day. The nurse in charge gives instructions to the children in personal and general hygiene, visits the homes, and instructs the mothers. In spite of the fact that the school takes care of about 2,500 children and is not kept any cleaner than the average public school in New York city (with the exception of the clinic room which is mopped up daily), we have had very few acute cases during the past two years. We have never traced an infection carried from one child to another in the classroom."

I quote also from a letter from the principal in regard to this school clinic. "The benefits of the clinic have been unmistakable. Before it was established we had constantly a large number of children (anywhere from twenty to, at times, fifty) excluded. These children were supposed to be attending the hospital. As a matter of fact they did not go to the hospital and practically they could not because of the inability of their parents to find time to take them there, and the interference with which they met upon the streets when they went alone. Immediately following the establishment of the clinic these exclusions were practically all discontinued. The cases yielded to regular treatment and the active contagious conditions disappeared. Later, through the prompt treatment of incipient cases, it is very unusual for any to progress beyond that stage.

"I do not know of any medical work done in the schools that has been so palpably efficacious as this, and I, once more express my hope that nothing may be done to interfere with that efficacy."

Another school principal has recently made the request that a similar clinic be started in his school. A movement, furthermore, is on foot to increase the capacity of the ophthalmia school.

We must conclude, from the results so far obtained, that if the measures above outlined could be carried out throughout the whole city, we need not fear the development of the chronic conjunctival affections, called trachoma. If new cases of "trachoma" develop, then by following our methods they are caught in their incipency, and in this stage all authorities acknowledge that even "trachoma"—especially in children—is more or less rapidly curable.

A. W. WILLIAMS.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Radium and Radiotherapy. Radium, Thorium, and Other Radioactive Elements in Medicine and Surgery. By WILLIAM S. NEWCOMET, M.D., Professor of Röntgenology and Radiology, Temple University, Physician to the American Oncologic Hospital, Philadelphia, etc. Illustrated with Seventy-one Engravings. Philadelphia: Lea & Febiger, 1914. Pp. xiii-315.

It is high praise for any book on radium to say that it sets forth the subject without disappointing the wary

reader with those every day defects of information and exposition which we find in the articles of those who dabble more or less seriously in scientific matters. Doctor Newcomet's work deserves this praise; it is strictly careful and sound within the limits he has imposed upon himself. He brings out the useful side of radium; his book is therefore a good guide for the beginner and practitioner. It has given us a pleasant surprise. It has taken us out of the world of pretentious ignorance, clear of the terrible environment of Chicago professors, and set us down among the solid facts of knowledge, which are so different from the battered thesis of some second hand scholar. We may take as an example of the sensible manner of Doctor Newcomet's work what he says of radioactive waters. The indications and uses are described with judgment. We notice this particularly, having, during many months, remarked on the indefiniteness of radium therapeutics, as writers often conceive them. The book is divided into two parts. The first includes the chemistry and physics of the radioactive substances, the second physiology and therapeutics, and in this last section the matter is particularly well done. The work is sure to be of use to students and physicians.

Diseases of the Rectum and Colon and Their Surgical Treatment. By JEROME M. LYNCH, M.D., Professor of Rectal and Intestinal Surgery, New York Polyclinic; Attending Surgeon, Cornell Dispensary; Attending Proctologist, St. Mary's Hospital, Hoboken, N. J., etc. Illustrated with 228 Engravings and 9 Colored Plates. Philadelphia and New York: Lea & Febiger, 1914. Pp. ix-596.

In writing this book the author has had chiefly in mind, not specialists in this field or even general surgeons, but rather those physicians without much experience in rectal surgery. He has therefore taken pains to discuss the various subjects from an elementary point of view and gives very full details of treatment. Such subjects for example as local anesthesia, operative and nonoperative treatment of hemorrhoids and fissure, and other minor rectal ailments are fully discussed and these chapters will be found of great value to the general practitioner. The important question of intestinal stasis is also thoroughly and scientifically handled and excellent x ray plates are reproduced to elucidate this very practical subject. The major surgery of the rectum and colon has not been given the same prominence, and the general surgeon doing rectal work will have to look to other books for fuller details of the more important operations, for example, for rectal cancer. As a practical treatise on the every day affections of the rectum and anus, the book should have a hearty reception as it is up to date, includes the most approved methods of procedure, and gives the reader the benefit of the valuable experience of the author in bedside work and clinical instruction.

The Tonsils. Faucial, Lingual, and Pharyngeal. With Some Account of the Posterior and Lateral Pharyngeal Nodules. By HARRY A. BARNES, M.D., Instructor in Laryngology, Harvard Medical School; Surgeon in the Department for Diseases of the Nose and Throat, Boston Dispensary; Assistant Laryngologist, Massachusetts General Hospital; etc. Illustrated. St. Louis: C. V. Mosby Company, 1914. Pp. 168. (Price, \$3.)

The author has rendered a great service to those of the profession who are interested in the diseases of the tonsils, by presenting a treatise rich in the truths pertaining to these frequently offending glands. He seems to have picked out only the useful and proved points from the vast amount of literature on the subject, and has condensed them into one small volume which reads almost like a novel. So delightfully is it written, and so clearly are the facts presented, that only reluctantly does one lay the book down, if one is not permitted to read it through at one sitting. The only criticism we find worthy of mention is the evidence of the author's inability to give conclusive data as to the true function of the tonsils. The section on the development of the glands is interesting in showing the reason of the numerous variations which are found in the appearance of these structures. The anatomy and histology receive careful consideration. The general pathology and bacteriology and the relation of the tonsils to systemic infections are duly considered and treated as important subjects. The various diseases of the tonsils and the surgery of these glands are amply discussed. The

illustrations are not excessive in number, but are so well executed as greatly to enhance the text. While the greatest value of this treatise will probably be to the specialist, nevertheless, the subjects discussed are frequently of such a nature as to make the book of decided value to the general practitioner.

Interclinical Notes.

The *Outlook* for January 20th draws editorial attention to the wave of misery in Labrador set in motion by the war, and the unprecedented suffering of the people among whom our distinguished colleague, Doctor Grenfell, has been laboring for so many years. The forces of Nature seem to have combined with human folly to make things harder, and for the first time in the experience of living men, the strait of Belle Isle was choked up with ice on August 1st, the day war broke out. The water was consequently too cold to permit of the catching of fish, which were in a torpid condition. The Grenfell Association at 156 Fifth Avenue, will welcome contributions from its friends and others.

* * *

The *Outlook* for January 20th reminds us that many of the officers on board the British dreadnought, *Formidable*, smoked cigarettes while she sank, thus defying some of the best moral thought in the United States and setting a wretched example to the men, who fortunately were saved by not having time to acquire the dreadful habit.

* * *

Sweet and Garnished, Rudyard Kipling's story in the *January Century*, is clever in its restrained horror, which does not break upon the reader until the tale has been partially assimilated. It is based upon the present war, and the scene is laid near the Belgian frontier of Germany. There is much else about the war in this number, particularly as it affects the countries engaged; there is also another story, *The Battle Film*, by Herman Scheffauer.

* * *

Roma White, in an article entitled *Under the Mistletoe*, in the *Strand* for January, 1915, says she hates to hear the plant called a parasite. "It is no more a parasite," she says indignantly, "than is the little laughter loving child that the old grandfather carries so proudly in his arms." Miss White would probably be astonished to learn that the laughter loving child is now viewed scientifically as a parasite on the mother.

* * *

We confess to a special weakness for *Current Opinion* as a contemporary review, owing to its peculiar method of rewriting or reediting the news and its ability in resurrecting topics that for various reasons have been but lightly touched upon by our nervous newspapers. In the January issue it brings the pituitary gland into popular literature, ranges from the evolution of man to the latest Krupp gun, discusses literature, the drama, and painting, sketches a few statesmen, and presents a most entertaining collection of cartoons evoked by the war. There is also some good and unusual discussion of business matters, which are forcing their way into the universities with what are bound to be extraordinary results. There must occur either a rise in commercial ethics or an alteration in those of the college.

* * *

How white men, after long residence, absorb the superstitions or beliefs of the natives of uncivilized lands, is told in *The Tree Spirit*, by C. E. G. Tisdall, in the *Wide World Magazine* for January, 1915. It is told here with circumstance how the men who violated the taboo of a sacred tree in Singapore were all taken "ill." Although a physician was summoned, the important detail of his diagnosis is omitted. There is always some scientific defect in these stories.

* * *

It is perplexing to find so widely traveled and experienced a writer as Charles Johnston writing in the *January Review of Reviews* of "the splendid regeneration of France"; much more to the point is the comment in *Current Opinion* on an article which appeared in the *Dublin Review* by Hilaire Belloc, on the French science of reality and how it affects the war. One hardly expects to find

Mr. Johnston looking upon the French as the English comic papers did in the sixties. France has always been France, quite misunderstood by her nearest neighbors, more so than ever since 1870; but the cultivated visitor has generally appreciated her. We suppose that she must win a fight in order that her scientific and artistic standing may come in for proper recognition.

Meetings of Local Medical Societies.

MONDAY, *February 1st*.—Clinical Society of New York Throat, Nose, and Lung Hospital; German Medical Society of the City of New York; Utica Medical Library Association; Niagara Falls Academy of Medicine; Brooklyn Hospital Club; Hornell Medical and Surgical Association; Clinical Society of the New York Polyclinic Medical School and Hospital.

TUESDAY, *February 2d*.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Amsterdam City Medical Society; Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital, New York; Syracuse Academy of Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Medical Association of Troy and Vicinity.

WEDNESDAY, *February 3d*.—New York Urological Society of Anesthetists; Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association; Bronx Medical Association; Elmira Academy of Medicine; Society of Alumni of St. John's Hospital, Brooklyn; Schenectady Academy of Medicine.

THURSDAY, *February 4th*.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva Medical Society; Glens Falls Medical and Surgical Society.

FRIDAY, *February 5th*.—New York Academy of Medicine (Section in Surgery); New Utrecht Medical Society; New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society; Society for Serology and Hematology, New York (annual).

SATURDAY, *February 6th*.—Benjamin Rush Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending January 20, 1915:

Creel, R. H., Surgeon. Directed to proceed to Chattanooga, Tenn., for conference with the commissioner of health relative to the smallpox situation at that place.

Fox, Carroll, Surgeon. Granted two days' leave of absence from January 15, 1915. **Frost, W. H.**, Passed Assistant Surgeon. Directed, at the request of the Immigration Service, to make an examination of a detained alien at Longview Hospital, Cincinnati, Ohio, to ascertain mental condition and fitness for deportation.

Grimm, R. M., Passed Assistant Surgeon. Relieved from duty at the Hygienic Laboratory, and directed to proceed to Spartanburg, S. C., and assume charge of the pellagra hospital at that place. **Herring, R. A.**, Passed Assistant Surgeon. Relieved from duty at Spartanburg, S. C., and directed to proceed to New Orleans, La., and report to the medical officer in charge for duty and assignment to quarters.

Kalloch, P. C., Senior Surgeon. Granted one day's leave of absence, January 14, 1915. **Leake, J. P.**, Passed Assistant Surgeon. On request of the State Board of Health of North Carolina, directed to proceed to Raleigh, N. C., for conference

and advice regarding the establishment of an antitoxin institute under the jurisdiction of that board. **Michel**, Carl, Assistant Surgeon. Relieved from duty in plague eradication measures at New Orleans, La., and directed to proceed to Jackson, Miss., and report to Surgeon Joseph Goldberger for duty in investigations of pellagra. **Purdy**, W. C., Special Expert. Directed to proceed to Urbana, Ill., for the purpose of securing at the Illinois State Laboratory of Natural History some data which are necessary in connection with investigations of the pollution of the Ohio River. **Smith**, F. C., Passed Assistant Surgeon. Granted four days' leave of absence from January 18, 1915. **Smith**, J. H., Jr., Assistant Surgeon. Directed to proceed to New Orleans, La., and report for duty to the medical officer in charge of plague eradication measures. **Sweet**, E. A., Passed Assistant Surgeon. Granted one day's leave of absence, January 20, 1915. **Wheeler**, G. A., Assistant Surgeon. Directed to proceed to Jackson, Miss., and report to Surgeon Joseph Goldberger for duty in investigation of pellagra.

Resignation.

The resignation of Passed Assistant Surgeon Thomas W. Salmon accepted by the President, taking effect December 31, 1914.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending January 23, 1915:

Bartlett, J. C., Major, Medical Corps. Has reported arrival at Fort Worden, Washington. **Betts**, Charles A., First Lieutenant, Medical Reserve Corps. Tendered resignation from the Medical Reserve Corps and same has been accepted by the President. **Bissell**, William G., First Lieutenant, Medical Reserve Corps. Tendered resignation from the Medical Reserve Corps, and same has been accepted by the President. **Brown**, Henry L., Captain, Medical Corps. Granted three months' leave of absence. **Coffey**, Albion McD., First Lieutenant, Medical Reserve Corps. Granted one month's leave of absence. **Hull**, Howard L., First Lieutenant, Medical Corps. Tendered resignation of commission and same has been accepted by the President. **Jervay**, Allen J., First Lieutenant, Medical Reserve Corps. Assignment to active duty by the commanding officer, Fort Moultrie, South Carolina, has been confirmed. **Meister**, William B., First Lieutenant, Medical Corps. Ordered to proceed to Letterman General Hospital for treatment from his station at Fort Liscum, Alaska. **Michie**, Henry C., Jr., Captain, Medical Corps. Ordered to proceed to the Walter Reed General Hospital for treatment. **Penrose**, Thomas W., First Lieutenant, Medical Reserve Corps. Ordered to proceed to Fort Sam Houston, Texas, and report in person to the commanding officer of that post for assignment to temporary duty in that department. **Tasker**, Arthur N., Captain, Medical Corps. Relieved from duty at Fort Hancock, New Jersey, and ordered to proceed to Fort Wood, New York, and report in person to the commanding officer of that post for duty. **Tenney**, E. S., First Lieutenant, Medical Reserve Corps. Ordered to proceed to Fort Liscum, Alaska, for temporary duty. **Wells**, J. G., Major, Medical Corps. Has reported arrival at Fort Worden, Washington. **Whaley**, Arthur M., Captain, Medical Corps. Relieved from duty in the office of the Surgeon General and ordered to report in person to the Surgeon General of the Army for assignment to duty as assistant surgeon in Washington, D. C. **Winn**, Robert N., Major, Medical Corps. Granted three months' leave of absence.

Births, Marriages, and Deaths.

Married.

Hensly—**Bacon**.—In Mahanoy City, Pa., on Tuesday, January 10th, Dr. George S. Hensly and Miss Helen S. Bacon. **Rang**—**Halter**.—In Garrett, Ind., on Tuesday, January 5th, Dr. A. A. Rang and Miss Gladys H. Halter. **Sharp**—**Marshall**.—In Newburg, N. Y., on Saturday,

January 16th, Dr. George Aaron Sharp and Miss Florence Jule Marshall. **Van Vranken**—**Camwell**.—In Passaic, N. J., on Friday, December 25th, Dr. Gilbert Van Vranken and Miss Rose Camwell. **Webb**—**Von Anglen**.—In Kansas City, Mo., on Tuesday, January 12th, Dr. James E. Webb and Miss Elizabeth Von Anglen.

Died.

Baker.—In Marysville, Pa., on Friday, January 15th, Dr. John D. Baker, aged seventy-two years. **Boston**.—In Red Hills, Va., on Friday, January 15th, Dr. Dudley R. Boston. **Bowman**.—In New Albany, Ind., on Tuesday, January 12th, Dr. Charles Bowman, aged eighty-nine years. **Brunner**.—In Brooklyn, on Thursday, January 21st, Dr. Charles W. Brunner, aged fifty-nine years. **Cobb**.—In Binghamton, N. Y., on Thursday, January 14th, Dr. John W. Cobb, aged seventy-seven years. **Cook**.—In Buffalo, N. Y., on Monday, January 18th, Dr. Joseph Tottenham Cook, aged fifty-nine years. **Dewey**.—In Olivet, Mich., on Saturday, January 16th, Dr. Charles R. Dewey. **Edgell**.—In Keyser, W. Va., on Sunday, January 17th, Dr. Lloyd L. Edgell, aged fifty-five years. **Evans**.—In Lewiston, Me., on Sunday, January 17th, Dr. Leslie H. Evans, aged thirty-six years. **Fisk**.—In Boston, Mass., on Monday, January 18th, Dr. Samuel A. Fisk, aged fifty-eight years. **Fulton**.—In Columbus, Ohio, on Friday, January 15th, Dr. Scott Fulton, aged fifty years. **Gouaux**.—In New Orleans, La., on Friday, January 15th, Dr. Theophile Gouaux, aged sixty-five years. **Hammond**.—In Clarkston, Mich., on Tuesday, January 12th, Dr. Lewis C. Hammond, aged sixty years. **Havens**.—In St. Johns, Mich., on Monday, January 11th, Dr. William Havens, aged eighty-four years. **Hill**.—In San Jose, Cal., on Saturday, January 9th, Dr. Walter B. Hill, aged seventy-five years. **Hinman**.—In Clyde, N. Y., on Tuesday, January 19th, Dr. Arthur F. Hinman, aged thirty-one years. **Hughes**.—In Keokuk, Ia., on Saturday, January 16th, Dr. Alonzo B. Hughes, aged fifty-six years. **Johnston**.—In Detroit, Mich., on Wednesday, January 13th, Dr. Emma Johnston, aged fifty-four years. **Kalbach**.—In Lancaster, Pa., on Tuesday, January 19th, Dr. A. M. Kalbach, aged sixty-nine years. **King**.—In Atlanta, Ga., on Sunday, January 10th, Dr. J. M. D. King, aged fifty years. **Leopold**.—In Philadelphia, on Monday, January 18th, Dr. Isaac Leopold, aged fifty-one years. **Lincoln**.—In Lancaster, Pa., on Sunday, January 17th, Dr. James Boone Lincoln, aged fifty-seven years. **Maxwell**.—In Indianapolis, Ind., on Saturday, January 16th, Dr. Allison Maxwell, aged sixty-seven years. **Noble**.—In Burlington, Vt., on Monday, January 18th, Dr. Daniel C. Noble, of Middlebury, aged fifty-three years. **Noyes**.—In Wauwatosa, Wis., on Wednesday, January 6th, Dr. Aaron A. Noyes, aged ninety-three years. **Palmer**.—In Salt Lake City, Utah, on Tuesday, January 12th, Dr. Luther Palmer, aged eighty-seven years. **Person**.—In Wilkesbarre, Pa., on Tuesday, January 19th, Dr. J. A. Person, aged fifty-three years. **Powell**.—In Cleveland, Ohio, on Saturday, January 9th, Dr. Hunter H. Powell, aged seventy-two years. **Pratt**.—In Lancaster, N. H., on Wednesday, January 13th, Dr. Harry S. Pratt, aged forty years. **Rogers**.—In Trenton, N. J., on Thursday, January 14th, Dr. Richard R. Rogers, aged ninety-one years. **Rogers**.—In Memphis, Tenn., on Wednesday, January 13th, Dr. William Boddie Rogers, aged fifty-eight years. **Rowan**.—In Wesson, Miss., on Friday, January 8th, Dr. J. A. Rowan, aged sixty years. **Rowe**.—In Hot Springs, Ark., on Wednesday, January 13th, Dr. George D. Rowe, of Boone, Ia., aged seventy years. **Schmidt**.—In Quincy, Ill., on Saturday, January 16th, Dr. William G. Schmidt, aged fifty-four years. **Spence**.—In Calsa, Miss., on Monday, January 11th, Dr. W. F. Spence. **Trice**.—In Charlottesville, Va., on Sunday, January 17th, Dr. Dabney M. Trice, aged fifty-four years. **Walsh**.—In Baltimore, Md., on Friday, January 15th, Dr. Ralph Walsh, aged seventy-four years. **Warner**.—In New York, on Wednesday, January 20th, Dr. Levi F. Warner, aged fifty-one years. **Warren**.—In Somerset, Ky., on Saturday, January 16th, Dr. Isaac S. Warren. **Winn**.—In Richmond, Va., on Friday, January 15th, Dr. John Farmer Winn, aged sixty-three years. **Wood**.—In Philadelphia, on Tuesday, January 12th, Dr. H. Walton Wood, aged thirty-five years.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal ^{and} The Medical News

A Weekly Review of Medicine, Established 1843.

VOL. CI, No. 6.

NEW YORK, SATURDAY, FEBRUARY 6, 1915.

WHOLE No. 1888.

Original Communications.

THE ACTIVE IMMUNIZATION OF HAY FEVER.

*A Preliminary Report.**

By SEYMOUR OPPENHEIMER, M. D.,
New York,

AND MARK J. GOTTLIEB, M. D.,
New York.

(From the Physiological Chemical Laboratory of the College of Physicians and Surgeons and the Laboratory for Clinical Research.)

INTRODUCTION.

Hay fever, or pollinosis, is a disease which manifests itself in the spring, from the latter part of May or the early part of June to the early or middle part of July and in the autumn, from the middle of August to the end of September or early October. It is characterized by itching of the eyes and lachrymation, sneezing, serous discharge from the nose and obstructed breathing, and itching of the palate and face. If the attack is very severe, sooner or later there is coughing and difficult breathing accompanied by wheezing. It is caused by the action of pollen grains, the pollen being carried by air currents and thus inhaled. If the recipient is susceptible to a pollen, an attack of hay fever promptly ensues.

In 1906, Wolff-Eisner (1) suggested that this disease was a condition of anaphylaxis. Dunbar (2), who studied the subject exhaustively, maintains that, besides hypersusceptibility to the pollen "toxin" there must be, in patients subject to this condition, an abnormal permeability of the skin and mucous membranes for the pollen substances. This last fact we have demonstrated by dropping a small quantity of pollen on the skin of the face, when redness and itching were soon manifest; also by dropping a minute quantity of pollen on the conjunctiva, redness and swelling of the lids occurring in a very short time.

Richet and Hericourt (3), in 1898, applied the name of anaphylaxis to a symptom complex of vomiting, diarrhea, respiratory distress, and sometimes death, which was produced in animals by a sublethal dose of toxic protein; or by a dose of nontoxic protein, followed in twelve days by a second dose of the same substance, which did not cause any symptoms in control animals not previously so treated. Since then much research work has been done, and many

theories have been suggested regarding the mechanism of this phenomenon.

Our present conception of the *modus operandi* of anaphylactic shock has been evolved from the work of Vaughan and Wheeler (4) on "split protein," or Sleswijk (5) and others on the role of complement during anaphylactic shock, and that of Friedberger and Hartock (6), and Ulrich Friedman (7), on the production of anaphylatoxin *in vitro*. These investigators have given us the following hypothesis: When foreign protein is injected into an animal, there is a production of antibody or amboceptor specific for that particular protein. This amboceptor unites with the antigen. By the action of complement in the blood, the antigen then undergoes proteolysis, the proteolytic products inducing the symptoms known as "anaphylactic shock." The antibody is formed after the first injection. If the second injection is given at the proper time, the proteolysis goes on very rapidly, with the production of fractions, or anaphylatoxin, in large proportion and consequently pronounced symptoms.

Hay fever is due, as previously stated, to a sensitization of an individual by the conveyance of pollen contents through the respiratory tract. There must be, at the time of sensitization, an abrasion of the mucous membrane so as to make parenteral absorption possible. In all likelihood, there exists in the patient an individual susceptibility to this particular disease, which seems to have some relation to heredity, for this and other allied ailments are frequent in given families. Among our patients there are two brothers with hay fever; a brother and sister with hay fever; a woman with hay fever, whose son suffers from asthma; two cases in which a father and one or more of his children suffer from hay fever; a young woman with hay fever who had intense eczema as a child and whose mother suffers with eczema that is rebellious to treatment.

An attack of hay fever is comparable in effect with the Wolff-Eisner (8) tuberculin reaction in the skin or with the Calmette (9) reaction in the eye. During the flowering season of plants, pollen is transported by air currents and is inhaled by all of us. The susceptible person becomes ill from the action of the pollen contents on his respiratory mucous membrane and the skin of the face. If a quantity of air laden with pollen is directed into the stomach or rectum, the symptoms are localized in the stomach or rectum and do not appear in the nose, eyes, mouth, or face. If a large dose of pollen extract is injected subcutaneously into a susceptible individual, typical symptoms of anaphylaxis

*Read before the Harlem Medical Association, February 3, 1915.

result, as has been observed in a patient to whom was administered an excessive dose of the extract. Within ten minutes thereafter, this patient felt a sense of oppression in the chest, a suffusion of the face, her breathing became labored, there was marked palpitation of the heart, and within forty-five minutes, a giant urticarial rash covered her entire body. All of the symptoms subsided within two hours and the patient felt well enough to get up.

Pollen grains of many varieties are capable of producing this condition, and not all individuals are sensitive to the same pollen. Among the most common plants in this country whose pollen induces hay fever are timothy, red top and blue grass, and ragweed and golden rod. The grasses cause the early or spring variety, whereas ragweed and golden rod produce the late or autumnal variety. Our experience has been mainly with the autumnal variety of hay fever. The majority of our patients were susceptible to ragweed alone; a few were markedly sensitive to ragweed and also slightly to golden rod.

There are three methods by which it is possible to determine which kind of pollen is operative in a given case. A drop of each of a given series of weak pollen extracts may be instilled into the lower conjunctival sac of the eye. The one which produces congestion and swelling of the caruncle and mucous membrane of the lid is the one to which the patient is sensitive. Very minute quantities of the available extracts may be injected intracutaneously and the extract of the pollen to which that patient is anaphylactic will cause swelling and redness around the point of introduction. When a very minute quantity of pure pollen is gently rubbed into a small scarification wound of the skin, a wheal will develop at and around this point of scarification, if the patient is susceptible to that pollen. Some patients are sensitive to more than one pollen; and it seems that there may be in some cases a general susceptibility to all pollen, so that only when a given reaction is marked is it possible to conclude which pollen is specifically causative of hay fever in a particular case. To be sure that no other factor than the pollen causes the reaction in a given instance, it is advisable to establish a negative control by simultaneous vaccination of another patient. No swelling should occur in the control.

Theoretical considerations. According to Rose-nau and Anderson (10), Otto (11), and others, if on the seventh, eighth, or ninth days after the first injection, a massive dose of antigen is injected into the experimental animal, symptoms of anaphylaxis do not occur with a dose of antigen on the twelfth day. This refractory condition, so produced, is called antianaphylaxis. This same animal will, twenty or thirty days later, become slightly sensitive to antigen, the symptoms being mild, fatal reactions rarely occurring. The reason for this refractory condition so produced was revealed by the researches of Neufeld and Dold (12), Kraus (13), Ritz and Sachs (14), Izar (15), Friedberg and Mita (16), Zinsser (17), and Bordet (18), who, working on the quantities of antigen, amboceptor, and alexin which are most favorable for the production of anaphylatoxin *in vitro*, found that large

proportions of antigen, compared with the other factors, inhibited the production of anaphylatoxin. They also showed that an excess of amboceptor produced the same result. In view of these facts, they concluded that the great concentration of antigen in the blood of the refractory animal inhibited the production of sufficient anaphylatoxin to cause symptoms.

Zinsser and Dwyer (19), working with typhoid anaphylatoxin, showed that guinea-pigs treated with sublethal doses of anaphylatoxin, developed a tolerance which enabled them to resist one and one half to two units of the poison, the tolerance developing within three days and lasting to a slight degree for as long as two months.

From the foregoing facts it should be possible to treat patients suffering with pollinosis by one of four methods:

1. By injecting a dose of pollen extract just before the hay fever time and repeating the procedure in twenty to thirty days.

2. By injecting a large quantity of immune serum during the attack. This we have accomplished in one of our cases. From G. G., a patient who received forty-five injections of ragweed extract, we took about two ounces of blood from a vein. After the proper precaution of a Wassermann reaction, we injected subcutaneously, eight c. c. of the serum into a patient thirteen years of age, during a violent attack of hay fever. Before the expiration of six hours, all symptoms of hay fever disappeared from this little patient and no signs of the disease returned during the entire season.

3. By injecting very small amounts of pollen extract at intervals of ten days or less, so that only minute quantities of anaphylatoxin are formed and the patient's tolerance is raised.

4. By injecting very small doses of anaphylatoxin made *in vitro* to produce the same results as in method number three.

Practical considerations. It has been our object to immunize our patients by injecting gradually increased doses of pollen extract to produce tolerance to the anaphylatoxin formed in the body. Beginning with one to five units of pollen extract, the dose was gradually increased until a local reaction appeared at the site of the injection. This dose was then continued until the patient showed no more reaction. Then the dose was gradually increased as before. One unit of pollen toxin is the amount of antigen dissolved in one cubic centimetre of extract at a dilution of one to twenty millions.

Method of vaccine preparation. The flowers are dried, stripped off their stems, and crushed by hand. These mutilated flowers were put into muslin bags of suitable size so that they could be shaken in a very large bottle. This bottle was connected by means of a cheesecloth covered funnel and rubber tubing to a suction flask which had on its outlet a bolting silk filter, the fine powder being collected in the flask. This method was partly successful with ragweed, but of no use in the case of golden rod.

It was thought likely that golden rod flowers needed a greater pulverization to free the pollen

from the anthers. Thus the flowers were put into a ball mill and a fine dust was obtained. Sedimentation experiments were then undertaken with this golden rod flower powder to determine what concentration of alcohol in water, and alcohol with ether in water would give the greatest concentration of pollen in the sediment. It was found that twenty per cent. solution of alcohol in water would sediment the most pollen, and this was used. Having started with powdered flowers containing about eight per cent. pollen, fifteen per cent. of pollen was found in the sediment.

This method is not satisfactory for the following reasons: In allowing pollen to remain in aqueous solutions of alcohol for sufficient time for it to sediment, the pollen grains are liable to be ruptured with an escape of their contents. This was actually the case; many pollen grains were found ruptured on microscopic examination.

The greatest concentration of pollen derived from the suction method was about eighty per cent. with the ragweed. This was only one sample of 1.75 gram. All other samples contained fifty per cent. or less. The pollen was extracted as follows: It was ground up for several days with sand and a sufficient amount of five per cent. sodium chloride solution with 0.5 per cent. carbolic acid added to prevent the growth of microorganisms. This mixture was placed in the thermostat for seventy-two hours at 37° C. and then filtered by suction. None of the extracts by this method gave the biuret reaction and few gave a positive ninhydrin reaction. The filtered extract was then precipitated with eight parts of absolute alcohol and filtered quickly in a Buchner funnel to avoid any denaturing, if possible, of the active principle by so strong a concentration of alcohol. The precipitate was dried and weighed. This precipitate, on testing, has never given a biuret or ninhydrin reaction. It is partly soluble in 0.85 per cent. sodium chloride solution and physiologically active in very weak solutions.

A total nitrogen content of one of the extracts of ragweed was calculated and it showed 0.066 per cent. of nitrogen. This same solution, on December 20, 1913, gave a positive ninhydrin reaction, whereas on March 24, 1914, three months later, the test was doubtful. This shows that pollen extracts in solution deteriorate on standing.

The dried precipitate was dissolved in 0.85 per cent. sodium chloride solution with 0.25 per cent. of carbolic acid, and serial dilutions were made. With these solutions the patients were treated by hypodermic injection.

The method described above for obtaining the pollen from the flowers was found to be extremely cumbersome and the results obtained hardly justified the work expended. We are now working on a method less laborious and time consuming. The fact that the extract is not completely soluble shows that there must occur some denaturing by the alcohol; and for this reason we are now endeavoring to perfect a method of extraction in which no such factor enters. It is our desire to report the results of our present research in a subsequent communication.

Eleven cases were treated in 1914, before and

during the season for autumnal catarrh. Six cases were treated in advance of the attack. One of these was cured for the season, four exhibited very mild symptoms, and one was not improved. Five cases were treated during the attack. The symptoms of four subsided after receiving from one to four injections, whereas one patient received no benefit. Altogether there were five cures for the season. In four cases there was marked improvement. In two cases there was no improvement. Of the two cases that were not improved, one had a polypoidal degeneration of the middle turbinate with underlying bone necrosis. The patient had distinct asthmatic attacks every night, and it was impossible to say whether the attacks were due to his hay fever or his local nasal condition. The other was a physician who reacted to both ragweed and golden rod pollen. He received in all thirty-three injections, alternating the ragweed extract and the golden rod extract. He came very irregularly. It is possible that at times the treatment was too intensive. His physical condition was so poor that possibly a tolerance could not develop.

Nine of our cases reacted to ragweed pollen and two reacted to that of both ragweed and golden rod. Both of these latter cases received both golden rod and ragweed antigen hypodermically. One was cured, but the other was not improved. When a patient is sensitive to more than one pollen, individual doses of each extract should be administered, in order to determine when the tolerance is sufficiently raised for each. Mixing the antigen is too empirical.

There are two ways of determining when a patient has become sufficiently immune to warrant discontinuance of the treatment.

1. With the complement fixation test.

2. From the size, intensity, and duration of the wheal produced by skin scarification, at different times, namely, before and during the treatment.

Clowes (19) was among the first investigators in this country to immunize hay fever patients with pollen extracts. He showed that it is possible to raise the immunity of the patient so that the serum shows an antitoxic content of from twenty to forty thousand units titre.

The complement fixation control we have not employed as frequently as the cutaneous method, but in the future we propose to use this control more extensively.

The scarification method is the one we have generally used to diagnose and determine the degree of immunity induced. The wheal produced by the initial vaccination is measured, its time of appearance and its duration noted. After five or six treatments the patient is revaccinated and the wheal is observed again as before, and compared with the former results. When the wheal is very small or does not appear, the patient is sufficiently immune and probably will go through the season with very mild symptoms, or none at all.

Naturally the question arises whether such immunization is permanent. We believe it is safe to say that, while immunity may not be successfully carried over to the succeeding year, recurrences are much milder at least, and require less reimmuniza-

tion. An attack the following year can probably be overcome by very few injections.

The best time to begin treatment is probably about ten weeks before the attack may be expected to occur. Regularity of attendance at about weekly intervals is important.

We feel that cures were not accomplished in two cases because treatment was begun too early; and in two other cases, because the patients were treated too irregularly. Furthermore, it is probable that some of these patients were susceptible to pollen other than that from ragweed and golden rod. At the time of our initial work, we were not prepared with as large a variety of pollens as we now possess for the continuance of this work along broader lines, which we hope in the future will enable us to bring about a larger percentage of cases influenced by our attempts at immunization. Our heartiest thanks are due to Dr. William J. Gies, director of the physiological chemical laboratory at the College of Physicians and Surgeons, for the opportunity of working on there some of this work; also to Dr. E. P. Bernstein for many valuable suggestions and aid.

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45 EAST SIXTIETH STREET.

THE HISTORY OF EXTIRPATION OF THE SPLEEN.*

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The statement is frequently met with that the ancients practised removal of the spleen in the belief that it improved the wind of runners. It is also stated that the speedy giraffe is the only mammal in which the spleen is absent, an observation that may have led to the above mentioned practice. Modern textbooks of comparative anatomy, however, attribute a spleen to the giraffe, like other mammals. Aristotle (1) guessed that the spleen was not necessary for the maintenance of existence, and Erasistratus maintained that it was of no use in life. Galen more conservatively considered it an organ full of mystery (*Mysterii pleni organon*) and that it probably removed the melancholy of the blood going from the liver to the stomach. The first positive statement that I could find as to its extirpation (not excision) is made in Pliny's (2) *Natural His-*

tory. An old English (3) translation runs as follows: "This member (the spleen) hath a proprietie by itselfe sometimes, to hinder a man's running; whereupon professed runners in the race that bee troubled with the splene, have a devise to burne and waste it with a hot yron. And no marveile; for why? They say that the splene may be taken out of the body by way of incision, and yet the creature live neverthesse; but if it be man or woman that is thus cut for the splene, he or she looseth their laughter by the means. For sure it is that intemperate laughers have always great spleens." In connection with the last statement it is interesting that the modern German word for hypochondriasis is *Milzsucht*. Pliny is said to have performed experiments on the removal of spleens from dogs, but this is probably merely an incorrect quotation of the foregoing. The belief that splenectomy improved the wind of runners, was not lost sight of in the middle ages, as is shown by the couplet quoted by Brogsitter (4) from Murer's *Belägerung von Babylon*:

Ich han mir lon dass milz uss schnyden,
Dass ich mag laufen wegt und veer.

He also quotes Paracelsus, who considered the spleen *Des Leibers und Lebens Unkraut*, and advised physicians to excise it whenever possible. Van Helmont, on the other hand, attributed to it important and even vital functions.

The first experimental splenectomy that I have been able to find since the times of the ancients was performed by Zambecari (5) in 1680. An apparently uneventful recovery followed the removal of a dog's spleen. Four months later, at autopsy, numerous yellowish bodies resembling hemolymph nodes were found scattered through the mesentery. This corresponds to the changes found in the lymph nodes by Warthin (6) occurring some weeks after splenectomy.

Marcello Malpighi (7), the discoverer of the lymphoid follicles of the spleen, had previously described the effects of ligating the splenic vessels of a dog. It not only quickly recovered from the operation, with no noticeable injury to health, but became more voracious and much lazier and fatter. Nothing abnormal was noted in the stools. We have also noted these changes occasionally in our experimental work, and clinical reports to the same effect exist. A second operation, performed some time after on this dog, showed almost complete disappearance of the spleen, and, except for some enlargement of the liver and engorgement of the mesenteric vessels, no other changes through the body. Clarke (8) successfully extirpated a dog's spleen in 1676. During the year following, before the animal was killed, it was noticed that it became much fatter.

The celebrated pathologist, Morgagni (9), states that he and Vallisnerius found no change during five years' observation in the size, disposition, or fertility of dogs whose spleens had been removed. J. H. Schultz (10) early practised splenectomy on dogs with a view to the application of the operation to human beings. Harvey and his pupils are frequently quoted as having extirpated the spleen in dogs, but I have not been able to find any such account in his works.

*Read before the Historical Section of the College of Physicians, November 12, 1914.

Observations on experimental splenectomy became more numerous in the nineteenth century. Assolant (11) found that in dogs the blood became more watery, with the appearance of scurvylike symptoms and fatal peptic ulcer. He states that Dupuytren lost almost fifty per cent. of forty dogs after splenectomy. Those that survived, recovered in two or three weeks and acquired abnormal appetites. Spitta and Mayo found increase in weight; Mayer, increased tendency to sleep; and Saunders, no change in bile formation. A. S. Schultze (13) removed the spleen of twenty-four animals (dogs, cats, goats, rabbits), losing only one puppy. He considered that it produced lessened fertility, greater inclination and ability to run far, and at first a decreased secretion of bile. Czernak (14), working with dogs, rabbits, and cats, found that two thirds of the animals survived, and showed lessened fertility and enlargement of the mesenteric lymph nodes at autopsy. He noted that the spleen became greatly congested after feeding. Vulpian (15), on the other hand, found no change in fertility when both animals had been splenectomized. Enlargement of lymph nodes after splenectomy was also noted by Tiedemann and Gmelin (16), Hyrtl (17), Mayer (18), Führer and Ludwig (19), Eberhard (20), and Simon (21).

Mayer also maintained that the extirpated spleen was easily replaced by the organism. This was confirmed by Eberhard working on a frog, and by certain French and Italian investigators (22, 23, 24). More careful later work (25, 26, 27, 28), however, showed that when the spleen had been completely removed no regeneration took place. If a small portion was left *in situ*, it might hypertrophy and simulate complete regeneration. [Philippeaux (29), Laudenbach (30)]. Even this, however, has been denied by Peyrani (31) and Ceresole (32).

Bardeleben (33) found that extirpation of both spleen and thyroid was almost invariably fatal. Only one dog, in which the thyroid was removed after complete recovery from splenectomy, survived. At autopsy, six years later (death from pneumonia?), persistent thymus and no enlargement of lymph nodes was noted. Mosler (34) noted a stimulation of the bone marrow, so that some time after splenectomy it presented the appearance of a leucemic marrow.

Thus we find that before the year 1875, numerous experimenters, working on dogs, cats, goats, rats, mice, guinea-pigs, sheep, rabbits, frogs, and one (Eternod) on a fox, had found that the spleen was not necessary to life. Though one out of four splenectomized animals died (usually from peritonitis or pneumonia), the others quickly recovered and enjoyed good health. The most constant finding was increased appetite and eventual gain in weight. There was apparently no loss in fertility, and the changes in disposition were too inconstant to be of value. At autopsy, enlargement of the mesenteric lymph nodes was frequently found, with occasional enlargement of the liver, congestion of the splanchnic vessels, and, by Mosler and Schindler, stimulation of the bone marrow. The power to regenerate after extirpation was denied, though if small amounts of splenic tissue are left behind, it

apparently possesses great capacity for hypertrophy.

The first recorded clinical example of splenectomy on a human being is the celebrated operation by Zaccarelli, performed in Naples in 1549, at the instance of Fioravanti (35), whose description I have translated:

In the month of April I was called to a Greek woman, the wife of a Greek centurion, or war captain, who lived at Panormus, near the Garden of Marinus de terra nova. Her name was Maruella, and she was twenty-four years old. Her spleen was stopped up (*opplatus*) and grew to such a size that the body could not have held a larger one. She had been visited by several doctors and had been told that if she wished to be cured, it would be necessary to take the spleen out of the body. The captain himself came to me and took me with him to visit his wife; she desired of me the removal of the spleen. For this purpose I invited an old man named Adrian Zaccarelli from the town of Palum in the kingdom of Naples, who was very skilled in surgery. With him I proceeded to the operation. The old man made an incision in the body and immediately the spleen protruded from the body. After we had separated it from the membranes, we pulled it entirely out and sewed the body up, leaving only a little hole (*spiraculo exiguo relicto*). This I cured with Oleum hypericonis, incense powder, Mastix, and so on. In this manner she was cured in twenty-four days. When taken out of the body the spleen weighed thirty-two ounces.

It should be said that some authors have doubted the veracity of this description, and Simon has suggested that on account of the discrepancy in the size of the tumor before and after removal, it may have been an unrecognized ovarian cyst.

Two other equally doubtful reports exist of successful splenectomy in the sixteenth century. Baillon (36) tells in a few words how, in 1578, an unknown operator removed the spleen, *qui secuit, prius superiore parte ligata; convaluit aeger. Estne igitur splen tam necessarius?* (which he cut after the upper portion had been tied; the sick man recovered. Is then the spleen so necessary to life?). Rousset (37) also describes the successful removal, by a certain Doctor Viard, of a spleen which had already protruded through a wound in the left side.

In the seventeenth century, two cases of total removal of the spleen are recorded. Timothy Clarke's (38) case was reported to him by an eye witness, Dr. Dovbeny Turbeville. A certain William Panier, of Somerset, in an attempted suicide drove his butcher's knife into his left side. The spleen and part of the omentum and intestines protruded from the wound, and his companions left him for dead. Three days later, a surgeon replaced the intestines, cut away the spleen and omentum, and sewed up the wound. The patient quickly recovered, was quite well a year later, and then migrated to New England where he lived happily and healthily for some years. The second case was also for prolapse of the spleen through a knife wound. Nicolaus Matthia (39), the town surgeon of Colberg, in 1678, was sent by the magistrate to a neighboring town to see a young man who had been injured by a knife thrust in the left side of the abdomen. The protruding spleen was pulled entirely outside the body and ligated. Three days later, the spleen was removed and the bleeding controlled with styptics. The patient completely recovered in

three weeks, and six years later was in good health.

Thus men began to realize that the spleen was not necessary for life. However, in spite of several similar successful splenectomies in the eighteenth century (40) (Gerbezius, 1700; Ferrerius, 1711; South-Wilson, 1743), rest, diet, salves, and blood letting, were considered the proper treatment for injuries of this important organ. The first case of reported extirpation of the spleen in America is apparently that of O'Brien (41) in 1816 for prolapse following a knife wound. The patient recovered completely in the space of eight weeks.

Karl Quittenbaum (42), who introduced the practice of ovariectomy into Germany, was probably the first to plan deliberate splenectomy for disease of the spleen. Numerous successful splenectomies on dogs and cats led him to believe that the omentum, whose vessels were always enlarged, took over the function of the spleen. In 1826 he had occasion to practise the operation on a young woman in an advanced stage of cirrhosis. Though she suffered from extreme ascites and weakness, he yielded against his judgment to the patient's entreaties, and removed the spleen. She died six hours later from shock.

More important in bringing the operation to the attention of the medical world, was another unsuccessful operation by Kuchler (43) in 1855. Death occurred a few hours after operation from hemorrhage from a branch of the splenic artery that had not been ligated. This gave rise to a lengthy controversy between Kuchler and the *Verein Hessischer Aerzte*, represented by the surgeon, G. Simon. Efforts toward reconciliation by Adelmann, of the University of Dorpat, to whom the matter had been referred, were unsuccessful. On account of Simon's greater reputation, his opinion prevailed that the operation was justifiable only when necessitated by an otherwise fatal wound. Adelmann quotes an early case (44) in this country by G. V. Dorsey. This, however, was nothing more than a splenopexy after separation of painful adhesions between the spleen and diaphragm. Ten years elapsed before splenectomy was again reported, this time in England by Spencer Wells (45). The patient died one week after operation, probably from septicemia. The nature of the enlargement of the spleen was not given. In spite of the unsuccessful outcome of this case, attempts at splenectomy quickly became more numerous. Thus Schumann (46) collected sixteen cases in 1868; Collier (47) twenty-nine in 1882, and Adelmann (48) fifty-three in 1887. Since that date the literature on splenectomy has been very thoroughly covered by three authors, Vulpus (49) (to 1894), Laspeyres (50) (1894 to 1903), and Michelsson (51) (1903 to 1913).

Diffuse to say that in later years the mortality after splenectomy has been materially reduced. This is largely due both to improvement in technique and to the general abandonment of the operation in cases of leucemia, in which condition the operation was nearly always disastrous. For the simpler conditions, such as cysts, torsion of a wandering spleen, or wounds uncomplicated by copious hemorrhage,

the mortality is almost nil. With severer hemorrhage, the degree of shock is apparently the deciding influence, but splenectomy still remains the preferable procedure. In numerous conditions, such as the early stages of Banti's disease, Gaucher's disease, and the two types of hemolytic jaundice, good results have been obtained by splenectomy, and in the past year, based on clinical and experimental evidences of increased blood destruction in the spleen, Eppinger and others (52) have found great improvement after splenectomy in cases of pernicious anemia. It is too early to say whether or not this improvement is permanent; but at all events one can say that the operation should certainly not be attempted until after careful study has given definite evidence that such procedure is indicated and that other forms of treatment have altogether failed.

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SEXUAL IMPOTENCE.*

Etiology, Pathology, and Treatment.

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In the past year there has been a surfeit of articles variously titled, having more or less bearing upon sexual impotence. Few such publications have, however, adequately presented the subject *per se*, but have considered impotence along with other sexual disturbances covering the scientific field reaching from sexual hygiene and psychology of sex to the sociological status of mankind. Impotence, curiously enough, is but imperfectly understood, and by many medical men considered synonymous with sterility. It should be superfluous to differentiate, but inasmuch as the term is so widely misinterpreted, I crave indulgence for consuming even a small space by way of explanation. The term conveys a relative meaning, varying in degree from the premature ejaculation (*ejaculatio præcox*) to total inability to have erection. The first condition is, as a rule, a forerunner of the second. Sterility also carries its own meaning; that is, the inability to procreate. A man can be quite sterile and yet be potent; the reverse is also true; many authentic cases are recorded where impregnation has resulted without coitus, where the semen was discharged at the introitus, through the premature ejaculation, or ejaculation having occurred in the absence of an erection.

The prevalence of sexual impotence attended with such grave consequences should stimulate physicians to a clearer understanding of a condition, which in turn will be attended by barren marriages becoming fruitful; lessen the many instances of marital infelicity, which is so appallingly due to sexual incapacity on the part of the male so afflicted, and, thirdly, diminish the ever increasing number of cases of sexual neurasthenia, ending in so many instances in complete mental deficiency and even self destruction. For these serious reasons this paper is written. It is, in fact, an appeal to the medical man in general practice better to understand this symptom, which has for its foundation a true pathology, and which cannot be dismissed with an exhortation "to forget it," or a so called aphrodisiac pill, which does not exist, or possibly the passage of an urethral sound or a cold rectal irrigation.

We should not lose sight of the fact that physiological impotence or the male climacteric may vary widely as to age in different individuals. I am confident that, as in the opposite sex, an early sexual activity usually means a correspondingly early cessation in the sexual capacity. Excesses during the earlier years of sexual activity may, too, be a strong factor in the production of premature senility of the sexual apparatus. No age nor even an average can be given. It is indeed as well to guard against giving a favorable prognosis to a man over fifty years old who seeks relief for loss of his potency, even if some true pathological condition can be located. His condition may frequently be improved, but, as a rule, there is a request for com-

plete rejuvenation, which in the majority of cases cannot be attained.

Let me reiterate that impotence is a symptom, not a condition; a grave symptom, indicating some abnormal process at work. Our classification begins with the nervous system, and the functional type is one of the most frequent and difficult with which we have to deal. It may be a true psychosis that has been slow in developing and has, as a rule, many factors which have played a role in the etiology.

The orthodox notion which the laity has so deeply ground into its moral make up as to the bad effects of masturbation is the most prevalent factor in the production of psychic impotence. The charlatan grasps at this vulnerable spot and utilizes it to play upon the state of mental depression. Every possible type of psychasthenia develops, and only too often the unfortunate is beyond the reach of assistance, and ends in disaster. Limited space forbids a detailed discussion of masturbation, which, indeed, would be superfluous and not to the point, but a revision of the unfortunate attitude toward onanism is suggested, and it is to be hoped that a careful investigation of this subject will result.

The other factors that go toward producing a functional impotence are purely psychological—the sense of fear and of fright. The fear of impregnation, venereal infection, and failure to perform satisfactorily his function are inhibiting states of mind. The fright attending discovery is another mental state that has often produced subsequent failure in potency.

The next group of morbid processes of which impotence is one among other symptoms are the constitutional disturbances, the most prominent of which are the various forms of anemia. It is quite common to find only an impoverished blood in a patient presenting himself for the correction of failing virility. In addition to the anemias, any debilitating disease will, of course, reduce the sexual power. Strangely enough, the one exception to this statement is pulmonary tuberculosis. A number of patients in advanced stages of the disease appear to have an increased libido, a condition much to be regretted in wedlock, since it only too naturally predisposes to the likelihood of conception.

By far the greater number of cases have a true pathology. This group is classified as the organic type, subdivided under testicular lesions, urethral lesions, and spinal cord lesions. It should be remembered that there are two separate and independent processes at work in the testis—the manufacture of spermatozoa in the seminiferous tubules, and the production of an internal secretion by the interstitial cells, the exact nature of which is not yet known. One of these two processes can be destroyed without in any way altering the other. Strange as it may seem, some morbid changes will affect one and leave the other in good working condition. This seems to be particularly true of extensive bacterial invasion whereby the tubules of both testes fail to yield any spermatozoa and yet potency remains unchanged. This may be explained by the cicatricial contraction producing pressure atrophy of the tubular epithelium, leaving the interstitial cells or the cells of the internal secretion

*Read before the Chicago Medical Society, December 16, 1914.

unharmful. It is the internal secretion that is essential in the production of masculinity. So long as some of these internal secretory cellular structures continue to function properly, and there is an absence of other pathological condition, the masculine type is preserved. Just how much testicular tissue is susceptible of destruction without affecting the sexuality cannot be definitely stated, but a total loss of one testis with resection of the other has not materially changed the sexual characteristics.

Atrophy of the testes produced by trauma, often received at puberty; a kick from a horse; being struck by a ball or club, will lower the sexual capacity. Persistent masturbation, excessive coitus, and sexual irregularities will produce atrophy of the testis. I am convinced that these conditions must be extreme and extend over years before such changes can be brought about. The orchitis and consequent atrophy complicating specific parotiditis, typhoid, and scarlet fever is well recognized, and these etiological factors are not to be overlooked or slighted in taking a history, and must be properly valued in venturing a prognosis.

Beside, the destructive processes of pyogenic infections, guma of the testes, neoplasms, and tuberculosis will, of course, destroy both the germinal and internal secretory cells.

Whether or not there exists a congenital impotence due to nondevelopment of the interstitial cells has not come to the writer's notice, either by way of the literature or personal observation. The occurrence of such a condition should not be surprising, inasmuch as a total absence of spermatozoa in a young adult is not rare, and this without any demonstrable lesion or any point in the history that would throw any light upon the azoospermia. That the failure to produce the spermatozoa lay in the testes and not higher in the genital tract the writer has proved in several recent cases by plunging a needle into the testes and globus major and minor of the epididymis. A drop of fluid so withdrawn showed not the slightest evidence of spermatozoa. A congenital sterility could be assumed from such a finding.

Changes within the urethra are probably responsible for the majority of the cases of impotence. Congenital malformations, marked hypospadias and epispadias, and underdevelopment of the penis may, of course, produce total sexual disability, but in all probability the condition in most instances is more psychic than organic, the patient being ashamed of his deformity and thus not developing the libido. Acquired deformity of the penis may result from scar contraction following trauma, or severe inflammation, usually of gonorrheal origin, involving either the spongy or cavernous portion. Such conditions are almost hopeless, since plastic work on the urethra is unsatisfactory, even under the most favorable conditions and in the most skilled hands.

The possibility of a pronounced varicocele, either unilateral or bilateral, influencing a reduced sexual power, must be considered. If such a condition is present in a marked degree, it is probably advisable to suggest an operation, or, if not marked, the wearing of a suspensory bandage.

It is reserved for the verumontanum, a small,

innocent appearing ridge of mucous membrane lying in the floor of the prostatic urethra, to play the leading role in the production of organic impotence, especially of urethral origin. As yet no one has offered an explanation as to why this simple structure, when slightly enlarged or inflamed, should so completely upset the sexual equilibrium. A simple ridge of mucous membrane in the normal state, richly supplied with bloodvessels and lymphatics, it is the seat of congestion during each erection. The engorgement with blood which at first produces an active hyperemia, and which later becomes passive, persists during the quiescent state of the urethra and penis; granulations quickly form and before long, instead of an insignificant ridge of mucous membrane, it is transformed into a large, angry looking mass of tissue, varying in size from that of a small pea to a small china marble. Covered with granulations and bleeding easily, it frequently produces a profuse hemorrhage which may be difficult to control.

It would be interesting to know just how such a pathological change could influence a process which presumably has its origin in the testes, so far removed from the seat of the lesion. To the painstaking pathologist we must look and wait for some light upon this part of our subject. The region of the verumontanum may present quite another picture when viewed through the endoscope. Very often, instead of finding a prominence, there is a distinct atrophy of this little eminence of the prostatic urethra; in place of chronic hyperemia, granulations and hemorrhage; distinct widening of the orifice of the utricle, loss of contractility, and pronounced anemia of the mucous membrane, not only of the region of the verumontanum, but also of the entire urethra, reaching from the bulbous portion back to the sphincter of the bladder. Such a picture may with impunity lead one to ask his patient how many years he has practised onanism, and the frequency with which he indulged. Or if there are other evidences in the history, of a life of debauchery carried to the extreme, especially associated with chronic alcoholism, such a picture in the posterior urethra may be seen.

What are the other conditions that will produce pathological changes in the prostatic urethra? Foremost is posterior gonorrheal urethritis of long standing, especially in neglected or maltreated cases. Next in importance ranks the colon bacillus. This organism may find its way into the urethra either through coitus or by direct extension from the constipated lower bowel. Sexually acquired, the condition is only too often wrongly diagnosed. The discharge produced is usually of the thin, watery type, and the physician may satisfy himself that it is not gonorrheal from the absence of the thick, yellowish green secretion characteristic of a Neisserian infection. If not properly managed, the inflammation frequently extends to the posterior urethra and produces severe changes.¹

Sexual excesses and abuses, the pernicious habit of indulging in coitus interruptus, frequent excitement without gratification, are all factors that will cause an enlargement of the verumontanum. Sex-

¹ *Chicago Medical Recorder*, April, 1903.

ual excitation, so often the probable concomitant of a prolonged betrothal, is at the basis of many cases of verumontanitis.

Seminal vesiculitis, either in the acute or chronic form, is not infrequently conducive to painful orgasm, which, in turn, affects the libido and so reduces the potency of the individual.

Any destructive process of the spinal cord involving the erector fibres will, of course, destroy the sexual power. It should be remembered that vesical incontinence and a reduction of the vita sexualis are frequently the first manifestations of tabes.

In discussing the treatment of impotence, it is well to adhere to the classification we have adopted for the etiology. Our first consideration, then, is concerned with the psychic impotent.

It will frequently require the most unlimited amount of patience to handle these cases. The first point to gain in attaining a cure is to obtain the complete confidence of the patient. Do not laugh at him when he relates his story, which often contains some humorous touches; give him your sympathy, assure him that there is something the matter with him, and that you can cure him, or at least improve his condition. In all probability, he has been through the hands of a number of medical men before he has reached you; probably, too, the charlatan, the faith healer, and Christian scientist have had their fling at him. Above all, gain his confidence and set to work to make sure that there is no real pathological condition present. In the absence of any organic lesion, the task is one of instituting a régime of good hygiene; regular habits, strict sexual abstinence—both mental and physical. I have always found it of value to urge some form of athletic exercise—tennis, swimming, gymnasium work, etc.; a simple tonic, attention to the bowels, and occasionally the passage of a sound and light prostatic massage. The latter procedures are more for the psychic effect than the hope of any actual therapeutic benefit. It will be of value to make out a detailed schedule, giving the number of hours of sleep necessary, the diet, amount of exercise, etc. Remember, these patients are suffering from a distinct form of neurasthenia and must be led in every minor way. Do not give up, but talk encouragingly, and in the end you will win.

If there is distinct atrophy of one or both testes, and no associated lesion, the outlook is bad. I know of no treatment that will improve sexual power under such circumstances. The electric current can do no harm, but rarely does any good.

In inflammatory conditions of the urethra, of course, the particular infection is to be combated and if subsequently there remains an infiltration of the prostatic urethra, this is to be met by the method to be described presently. For staphylococcic infections the writer has found oxycyanide of mercury of great value, used in irrigations and instillations in solutions of one to 10,000, increasing to one to 5,000. In colon bacillus infections I am getting the same good results reported in two previous papers,² using the solution of aluminum acetate (N. F.), 0.5 to two per cent.

Fortunately, as before stated, by far the greater

number of premature impotents have in the etiology a chronic inflammation of the verumontanum. I say fortunately, because the results obtained are most gratifying, and within the safe age limit we can without fear give a favorable prognosis. The first point to make is to remove the cause, as given under etiology. Careful regulation of the bowels is of prime importance. Accumulation of hardened feces in the rectum increases the state of congestion in the prostatic region. A nonacid diet is probably of value, especially in the presence of burning during micturition. In addition, bicarbonate of sodium in dram doses twice daily is an advisable adjunct to our régime.

If there is any appreciable congestion of the prostate or sensitiveness of the seminal vesicles, ichthyol and belladonna suppositories, together with a very hot sitz bath once or twice daily, will give good results.

The all important measure is the local treatment of the verumontanum. Through the endoscope applications of nitrate of silver are made, beginning with ten per cent. and slowly increasing up to the pure caustic. The cauterizations are made at intervals varying from five to ten days, depending upon how severe the reaction is after treatment. Occasionally quite a profuse hemorrhage will occur if many granulations are present. This can be controlled by making a topical application of adrenaline. During the course of treatment attempts at coitus should be strongly interdicted. The treatments should be kept up until all evidences of prominence of the verumontanum are gone, and no bleeding occurs when the endoscope is introduced. It requires about ten to twelve cauterizations before a cure is obtained. Before dismissing your patient, warn him that if he again indulges in any of the abuses which may have produced his impotence, that he will surely have a recurrence, which will be much more difficult to relieve.

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IS SIGHT TO BE THE SOLE INTELLECTUAL SENSE?

With Special Reference to Physical Diagnosis.

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The special senses may be classified as follows:

1. Smell, chemical for gases and vapors, local.
2. Taste, chemical for liquids and solids in solution, local.
3. Hearing, vibratory, local.
4. Temperature, vibratory, general.
5. Sight, vibratory (?), local.
6. Touch, mechanical, general.
7. Muscular sense, mechanical, general.
8. Equilibrium, mechanical, local (?).

The question mark after vibratory for sight is in allusion to the tendency to the return to the older view of light as a stream of particles; that after the designation of local for equilibrium is in allusion to the lack of unanimity as to the function of the semicircular canals and the unquestionable

²Transactions American Urological Association, 1911 and 1912.

derivation of sensations of direction and even of disturbed equilibrium as in sea sickness, from the differences in inertia of various parts of the body, especially the liver. The sensation of burning from acids and other chemicals, the itching of insect bites, etc., represent an additional, rudimentary chemical sense of general distribution. Pressure is omitted since it is inseparable from touch or, if the pressure is applied over muscles or tendons, from the muscular sense. The general appetites, sexual and nutritive, are sometimes considered as rudimentary special senses. A sense of absolute direction has been exploited in fiction, but probably depends upon unrealized deductions from various observations made through the other senses. It is interesting to note, however, that many persons, including the writer, have an obstinate subjective sense of the points of the compass, more or less accurate, not explicable by direction of rivers, lay of land, similarity of artificial landmarks, permanent for any given place, and extremely annoying when it persists in contradiction of the positive evidence of the sun, magnetic needle, etc.

The senses of hearing and sight are pretty generally designated as intellectual because of the greater complexity of reasoning processes to which they give rise and the greater accuracy of description to which they are susceptible. The tactile and muscular senses, especially in the blind and in those skilled in various arts, rank almost as high. In the dog, smell ranks as an intellectual sense, and the existence of the olfactory bulb, pointing to the evolutionary loss of a distinct cerebral lobe, also indicates that this sense originally held high rank. When we reflect that language is not only an expression of the superiority of human over animal life, but is a necessary medium of any complicated mental process, it is plain that hearing is the original human intellectual sense. It is unnecessary to state that language developed first in its spoken form. It may be well, however, to emphasize two facts which are often misunderstood: 1. Human language is not closely analogous to the cries of the lower animals, which are very limited in variety and represent only primal appetites and emotions. Human beings retain analogous cries to some degree and, as in the case of the lower animals, they are practically identical for the whole species. 2. Human speech reached almost its highest state of scientific development without the aid of writing or other methods of appealing to the eye. For example, most of the American Indian languages were of the highest degree of grammatical complexity, yet they developed solely as spoken languages, for the picture writing, except in the centre of the western continent, was absolutely ideographic and did not represent words. On the contrary, English, the only language of recent development, if not the only one that has changed to the degree of being ranked as a separate speech since the invention of a relatively perfect system of writing, is almost the simplest and least grammatically developed of all languages.

The decay of conversation, the general preference, after early childhood, for visual reading to listening, the failure of many otherwise highly in-

tellectual persons fully to comprehend spoken language—as noted in our own profession at conventions—indicate the gradual ascendancy of sight over hearing. Even for the blind, speech has been reduced to a tactile substitute for vision. The general diffusion of education is partly responsible for this change, but we must also take into account that with the growth of various sciences, so high a degree of complexity has been developed, that it exceeds the limit of memory, even for a single proposition, so that the line of argument can be followed only by keeping it before the eyes. Thus, in spite of the invention of the telephone and phonograph, microphone, etc., and the development of acoustics in the scientific sense, the position of hearing has continued to retrograde.

With regard to diagnosis, we may distinguish quite sharply between subjective and objective sensations, although it should be borne in mind that the mere fact that the observer and the observed are the same person, does not necessarily render the sensation subjective. For example, a trained observer may recognize hydrochloric acid in eructated matter and distinguish it from organic acids, he may recognize a dermal lesion, a pulmonic rale, even a cardiac murmur quite as objectively as in another person. Even in an untrained person, limitation of anesthesia, the distance to which two points may be separated to be felt as two, differences of temperature of objects, may be relied upon quite well, the essential element of subjectivity being lacking.

All the special senses have been employed as objective means of diagnosis, except that of equilibrium which, conversely, is one of the most important though nearly the most limited, in diagnosis from subjective statements.

Up to a century or two ago, taste was very frankly used in objective diagnosis. Partly for esthetic reasons, partly on account of the development of chemistry, it has lapsed so completely that it is now employed only in the crude preliminary investigation of samples of foods and drugs, as in cases of suspected poisoning.

Smell is an extremely valuable sense which has not so much lapsed as it has been deliberately suppressed through mistaken notions of esthetics. Children instinctively smell every unfamiliar object. Unless it is a flower, the chances are that they are scolded for doing so, and instead of cultivating the sense intellectually, we have not even developed our vocabulary so that we can express a remembered sense of smell except by comparison. When one of our colleagues in a poem mentioned a rectal specialist as "so skilled in diagnostic art that he could diagnose diseases by the odor of" the intestinal gases, he meant it only in jest and a bad one at that. But the various volatile and gaseous excretions of the body do have a genuine value in diagnosis. Favus and variola are usually remembered as diseases in which the sense of smell is diagnostic, and everything else forgotten. Hepatic sclerosis or, at least, some of its metabolic consequences have a characteristic odor. Ammonia, acetic acid, delphinic acid, and some poisons may, for practical purposes, be quite as accurately deter-

mined by odor as by visualized chemical tests. The writer recalls a case of illuminating gas poisoning, palmed off on a considerable number of persons as heart failure, no one being impressed by what should have been a perfectly familiar odor.

The tactile and muscular senses, more or less combined, are of well attested value in diagnosis. Emphasis should be placed on the value of inaudible and, therefore, palpatory percussion as a neglected art. The gynecologists and, to some extent, the proctologists have found it necessary to protest against the undue use of the speculum and the neglect of palpation. In the abdomen, palpation often reveals clearly, lesions scarcely suggested by percussion, auscultatory or otherwise, x rays, etc. This is particularly true of enlargements of the spleen, movability of the kidney, induration of the gastric wall from any cause, lesions of the appendix, not to mention the pelvic organs. In the writer's experience, more mistakes are made in imagining tumors to be present when they are not, than in missing genuine masses of any considerable size. Perhaps this explains the admission that the writer has very rarely found the phantom tumor so often described. One of the great faults to which all of us are liable, is lack of reliance on our own senses. For example, a patient who had been passing lumbricoids declared that she could feel a mass of them in the bowel. She was assured that this was purely imaginary and that there was nothing but a fecal mass. The next day, she brought a tumblerful of worms knotted together, and the supposed fecal mass had disappeared. The combined use of the senses is especially valuable. For instance, a patient repeatedly showed a moderately enlarged hepatic area by auscultatory percussion, yet palpation unmistakably revealed enormous downward projections of both right and left lobes. Instead of reasoning out why the masses were palpable but did not transmit vibrations from the upper part of the liver, it was held that, for some reason, the auscultatory method had failed. The diagnosis of cancer was correctly made. At necropsy, it was found that the cancerous masses, while conforming to the general shape of the lower portion of the liver were so sharply demarcated from normal tissue that they vibrated as an independent unit. The medical profession is wont to criticize the legal for its lack of preparedness, short hours of labor, and delays, but it should learn from the latter the conception of evidence as the harmonizing of testimony from different sources, rather than as consisting of parts that are essentially unreliable and of parts that must be believed without regard to contradictions.

Temperature is a valuable diagnostic aid, at present too often neglected in favor of specific biological reactions, or simply because it is an old story. But, with some limitations of physiological or nervous importance, the temperature sense is too purely relative and too crude to be depended on, and temperature is judged only by visualization through the thermometer. The subjective sensation of feverishness is, so far as the writer can judge, usually fallacious.

It is just about a century since Laennec devel-

oped the stethoscope beyond the crude forms which had been more or less used for many centuries. The systematic study of the heart and lungs by mediate auscultation, not only yielded direct results of the utmost importance, but stimulated the use of immediate auscultation and of percussion. The nineteenth century may almost be characterized, in internal medicine, as the century of auditory investigation. Without attempting to cover the broad field of auditory diagnosis, attention may be called to some points not sufficiently appreciated. Auscultatory percussion, including the use of the tuning fork, electric buzzer, various forms of mechanical percussors, on the one hand, and of various types of stethoscopes, on the other, is a much neglected, by no means new, and extremely valuable application of the sense of hearing. It deals mainly with the determination of units of sound conduction. While used largely for mapping out organs, as has been already intimated, it may serve to distinguish a part of an organ of different consistence from the rest. For example, if the stomach is filled with liquid to a given level, the two zones are separately determined. Similarly, a consolidated pulmonary area or collection of liquid in the pleura may be distinguished. The limitations of the method should be well understood. It cannot be applied to an area too small to admit of the placing of an adequate conductor of vibrations—some form of stethoscopic end—nor can it map out boundaries as mere lines, since there is a transition zone of vibrations communicated by the percussor or its substitute. As in most other cases, we should remember that the method does not name the organ or unit of vibration which it discloses. This is simply an induction from anatomical knowledge or other methods. For instance, in transposition of viscera, wrong conclusions may be reached though, usually, the mere size of the areas mapped out to the left and right arouses our suspicions. Sometimes we map out what seems to be the stomach, when we are really following the resonance of the splenic flexure. Sometimes in true gastroptosis of marked degree, we confound the large intestine above and the banana or squash shaped stomach below. Deglutition sounds, effervescence of a carbonate swallowed, x rays, and various other means may be employed to check the results. By ordinary auscultatory percussion, we may apparently map out a dilated stomach, because the stomach and colon, when much distended, are of so nearly equal vibrating capacity and so closely in apposition, that no line can be drawn between them. Yet in such cases, the more delicate one note vibrations of the tuning fork often distinguish clearly. Auscultatory percussion may also be applied to determine whether a bone vibrates as a unit or has been fractured; or to such domestic problems as the location of a scantling in the partition of a room.

From many works on diagnosis, one would conclude that auscultation is limited to the heart and lungs. Its extension to bloodvessels needs no discussion. A note may, however, be interpolated. In examining a heart, a curious swishing bruit suggestive of aneurysm was heard. This proved to be due to pressure on an unusually large branch of

an intercostal. The same sound heard over a well known artery of large size, such as the radial would, of course, have caused no suspicion of aneurysm. The use of the stethoscope in sphygmomanometry need only be mentioned. But let us not forget that auscultation may be applied to the nose, the larynx, and trachea, that patient pursuit of this method over the stomach and intestine leads to an appreciation of peristaltic phenomena of great value. Even the funnel of a stomach tube may be thus used, as a matter of interest at least. Crude but often valuable distinctions between acidity—not hyperchlorhydria except by inference which must be carefully checked—and lack of acidity in the stomach may be made by auscultating for effervescence after the administration of sodium bicarbonate. In a recent case in which auscultatory percussion left the diagnosis doubtful between extreme gastropnoia with splenic flexure above and a fairly normal stomach with dilated transverse colon below, fluoroscopy proved unsuccessful. Sodium bicarbonate did not produce effervescence in either area. But, on giving dilute hydrochloric acid, effervescence occurred promptly in the upper area. This fact, with observations of the deglutition murmurs, proved that the stomach occupied its normal position. Peritoneal friction sounds may be heard and certain forms of myositis produce crepitus within the muscle or tendon sheath.

The last word on auscultation and percussion will not be written until close attention has been paid to the absolute pitch of the sounds heard, by careful comparison with standard tuning forks. This work will require an exceptionally acute ear and much patience. But the writer, during the last few years, has done some experimenting with a stethoscopic resonator, adjustable so as to harmonize with tones of various pitch. By adjusting the resonant cavity of the stethoscope to conform, for example, to a given heart sound, the clearness of the sound is much intensified and the deductions drawn are correspondingly more accurate. This work, on account of personal limitations of pitch sensations and other reasons, has not progressed far enough to warrant a more detailed description.

We are, at present, entered upon a new era in diagnosis, in which the tendency is to rely more and more upon the sense of sight. The writer does not pose as a reactionary, but, just as teachers of a quarter of a century ago warned their students not to disdain inspection, so the time is ripe to warn against disregarding the older methods and reducing diagnosis entirely to refined methods of inspection. Inspection formerly meant an empirical observation of superficial phenomena, mainly in the skin itself. Mark I. Knapp has taught us that by "looking Indian" as the boys say, we can actually determine the location of many of the viscera by the waves communicated to the body wall in respiration. Endoscopy has brought within reach of the eye the respiratory tract down to the subdivision of the bronchi, the bladder, the esophagus, stomach, and at least a foot of the lower bowel. Transillumination has not been especially valuable. In 1897, the writer devised the bismuth-x-ray method of

locating the stomach, having been anticipated without knowledge of the fact at the time by Roux, of Paris, by a few months. In view of the dispute as to the relative value of radiography and fluoroscopy, it may be of interest to note that the former method was tried unsuccessfully, on account of using capsules containing reduced iron and the lack of appreciation of the necessity of instantaneous photography, as well as probably the inefficiency of the apparatus, if this need had been recognized. With diffused bismuth, fluoroscopy gives essentially the same results as auscultatory percussion.

With due regard for the great advance made in the radiography and fluoroscopy of the alimentary canal, it may still be necessary to utter the warning that we must not be too strongly guided by the old saying that "seeing is believing." We must be on our guard against all sensory perceptions. For instance, in a recent case of hyperchlorhydria, the diagnosis of a normal gastric area by auscultatory percussion was sharply contradicted by the x ray picture of an hourglass stomach. It seemed at first that no course was open other than the confession of a gross error. But, fortunately, the radiographer had done his work thoroughly and had made a series of exposures. On comparing these, the hourglass form could be plainly seen in each, but in different cross sections. Fluoroscopy showed exactly the same condition, but with the proper sequence of events. The peristaltic wave was very marked, the stomach being indented by it to a degree that would seem impossible. Now, we did not see an hourglass stomach, but merely a literal hourglass constriction. This constriction is, when we reflect, not so deep as it appears from the shadow, since the crest of the wave with its rugæ represents a considerable distance within the average contour line of the gastric wall. Moreover, in a sharp contraction, it is altogether likely that the contents with the bismuth are thrown from the inner surface of the stomach. Thus the two examinations were really in accord, allowing for the fact that auscultatory percussion shows only the average contour of the stomach.

There is danger that visual diagnosis through x ray may be misleading on account of preconceived ideas. For example, ordinary forms of diagnosis reveal the transverse colon only for part of its length, where it is almost exactly horizontal. Viewed by x ray, we see it stretching diagonally upward toward the flexures and, by gravity, the bismuth tends to reach the lowest part of the circumference of the bowel in the middle portion and not to be thus limited above. For this reason, especially if there is a slight angle in the direction of the ray, we are very apt to get the impression of a coloptosis. Such a case, thus diagnosed, contrary to auditory methods of diagnosis, and subjected to operation, naturally results in disappointment.

We must also be somewhat skeptical as to pictures of the entire large intestine, with penetration of a bismuth injection from the anus to the cecum in a few minutes. Some radiographs are so clear that we must acknowledge that they really do show the cecum. But the sigmoid may be very long and

may assume almost any shape, except perhaps that of an s or sigma, and many of these radiographs probably show only this extent of large intestine.

The reliability of auditory and other methods, exclusive of vision, even beyond probability, is illustrated in the following cases: Typical signs of right iliac aneurysm in a syphilitic corroborated by many observers, death from intercurrent disease, artery found unexpanded at necropsy, scurrilous remarks by witnesses, including those who had concurred in the diagnosis; artery distended by head of water from fountain syringe, reappearance of aneurysmal dilatation, where it had been noted during life. Elastic, collapsing aneurysm is a rare condition and one on which the writer would invite information.

Through the courtesy of Dr. Herbert A. Smith and Dr. Charles G. Stockton, an examination was made of an appendix case, immediately before section. The appendix seemed to be palpable immediately beneath the abdominal wall, and there was a small bulbous area of resonance in its course. The joke was passed that here was a good chance for brilliant diagnosis of a superficial, gas distended appendix—and this was exactly what was found.

In a case seen some years ago, both auscultatory percussion and fluoroscopy apparently showed hourglass contraction of a rather large stomach extending farther to the right than usual. Cancer was diagnosed as the ultimate lesion. The diagnosis was confirmed by necropsy, except in the important particular that there was not an hourglass contraction of the stomach, but that the two cavities were the stomach and a dilated duodenum, with cancerous, permeable, pyloric stricture. Why the duodenum was dilated did not appear.

We gain some idea of the extent to which visual methods have developed in diagnosis, when we reflect that bacteriology in its extensive sense, including most specific determinations of infections, directly or by biological reactions, comes under this head. Chemistry, originally sensed by smell and taste, has become almost entirely visual, so much so that the true chemist will sneer at the clinician for noting even the most characteristic odor, instead of going through the most elaborate and least satisfactory color or precipitation tests. Recording and quantitative instruments for touch, muscular effort, circulatory and respiratory movements, peristaltic movements, electric conduction, and the like, apply vision to the most varied forms of diagnosis. When we recall an authority accustomed to speaking in public, presenting typical diagrams, becoming so balled up as to be unable to explain his charts, a reasonable degree of skepticism is justified as to the practicality of some of these newer methods, even if we grant the frequency of what have been considered rather uncommon conditions, and allow for the limitation of complicated instruments to a few investigators. It would be unwise and unjust to disparage the newer methods, but it is at least premature to lay aside the auditory methods established by a century's use and thoroughly standardized. In fact, both from the standpoint of diagnosis and from that of self education, all our senses should be used and trained to the utmost.

DIGITALIS THERAPY.*

Some Clinical Notes.

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Despite the therapeutic use of digitalis for over a century, it is only within recent years that fairly accurate fundamental knowledge of its actions is being gained by means of careful clinical observations, pharmacological experiments (1, 2), and by polygraphic (3, 4) and electrocardiographic records of the effect of the drug upon the conduction system, the arrhythmias, and vagal tone. We possess as yet no accurate method of testing its effect upon the contractile power of the heart. From our present knowledge it appears probable that digitalis may increase the normal inhibitory effect of the vagi upon the heart, thus increasing vagal tone; that it may impair conductivity by increasing the conduction time of an impulse from the normal pacemaker (the sinoauricular node) to the atrioventricular conduction system, or may produce incomplete or even complete heart block; that it may increase cardiac excitability and produce premature contractions or extrasystoles (5), and that it occasionally produces auricular fibrillation. Such apparently contradictory effects—the production of arrhythmias by the drug and its frequent therapeutic value in these irregularities—have presented perplexing aspects of digitalis therapy. The well known physiological fact that there is sometimes an imperceptible line between the stimulating and toxic effects of a drug on nerve tone and that these effects may be opposite, may apply to digitalis; Hatcher, for example, has experimentally found that such is the case with the latter.

In the present paper, unless otherwise mentioned, the only digitalis preparation discussed will be the tincture, given three times a day undiluted in fifteen minim doses. The types of arrhythmias described have been confirmed by polygraphic or electrocardiographic tracings.

The main value of digitalis depends upon its power of increasing the cardiac output, the pumping action of the heart, and this seems to depend upon its direct effect on the cardiac musculature. In decompensation accompanying rhythmically beating hearts, digitalis may have to be given until vomiting or severe headache occurs before beneficial effects are noticeable. With the onset of these symptoms the patient usually feels depressed, but the circulation is often improved for many days, as evidenced by the disappearance of dyspnea, edema, and pulmonary congestion. Occasionally the first therapeutic benefit is concomitant with the sudden onset of vomiting.

Digitalis acts almost specifically in that type of arrhythmia which is usually accompanied by a completely irregular pulse—auricular fibrillation. Many of the weaker ventricular beats do not raise the aortic valves sufficiently to produce pulse waves; these are the frustrant contractions which cause the so called pulse deficit. In decompensated, untreated cases the usual ventricular rate is over 100. Lewis

*Read before the Harlem Medical Society, October, 1913.

(6) has pointed out that the rapid irregular ventricular action is the main cause of broken compensation. Digitalis will often control this irregularity, lessen the pulse deficit, and reduce the ventricular rate within a few days. The latter action has been ascribed to the effect of digitalis on the auriculoventricular conduction system, with resultant block of many of the discordant auricular impulses. A sudden reduction of pulse rate was particularly well illustrated in a case of auricular fibrillation with a double mitral lesion, severe decompensation, and an extremely irregular pulse of about 130. The infusion of digitalis in half ounce doses was given for three days without benefit. Then suddenly the patient vomited. Immediately thereafter the pulse and heart rate quickly dropped to 60 and the temperature, which had been normal, fell to 96.5° F. per rectum. Despite these apparently alarming symptoms of collapse, the patient felt much improved, dyspnea and edema were very much diminished. This improvement lasted for two days.

Digitalis sometimes readily induces coupled rhythm in auricular fibrillation. When the second half of the couple consists of frustrant beats, the pulse rate is half that at the apex. The induction of coupled rhythm is ordinarily regarded as a contraindication to the further use of digitalis. But coupling sometimes occurs after a few doses, the patients are not benefited, and if the drug is discontinued, irregular rapid ventricular action soon recurs. Under such circumstances, digitalis should be continued despite coupling, until definite clinical improvement takes place or until the ventricular rate becomes less than forty-five a minute. In a few cases the writer kept patients under the full effects of digitalis several weeks after the appearance of coupling. Some of these were sufficiently improved to walk about. In no instance were there any noticeable ill effects, in fact, two of the patients felt best when coupling was present. In auricular fibrillation after compensation has been established and the patient's individual tolerance and dose have become known, it may be necessary to continue medication for months or even years. Under careful supervision, this may be done without harm or danger.

In connection herewith, the writer wishes to correlate several isolated observations in which the administration of digitalis was accompanied by epigastric pains and occasionally by "hunger pains." Several times the first borderline symptom between a full therapeutic and a toxic dose was the appearance of severe cramplike epigastric pains upon pressure. This pressure sensitiveness had no connection with the ingestion nor with the time of administration of the drug; nausea was present only when the epigastrium was too forcibly palpated, the usual digitalis nausea and vomiting occurred at least two or several days later. In one instance, beside exquisite epigastric pains upon slight pressure, the patient—a man aged twenty-four years with regular heart action and a decompensated mitral regurgitant lesion—suffered from "hunger pains" and faintness to such an extent that unless fed during the night he could not sleep. This happened each time upon the readministration of digitalis. Other similar but much less marked instances were ob-

served. Hatcher and Eggleston (7) have shown experimentally that digitalis in therapeutic doses may cause vomiting by action upon the vomiting centre in the medulla and not by peripheral gastric irritation; they injected intravenously various digitalis bodies (digitalis, digitoxin, adonis, strophanthus), and induced emesis in several kinds of animals in which the gastrointestinal canal had been removed from esophagus to anus. There are many theories regarding the origin of epigastric pains and of hunger sensation. The careful experimental work of Pavloff (8) and of Cannon and Washburn (9) refer the latter to hypertonicity in the domain of the vagus and state that "hunger pains" in the fasting condition are accompanied by increased tone of the gastric musculature. Knapp (10) believes that hunger is produced by contraction of the muscularis. The cause of epigastric pain in functional gastric disturbances is still obscure and will not be discussed. The writer (11) has several times observed epigastric pressure sensitiveness in patients with normal hearts, with symptoms of gastric neuroses, and with abnormally slow pulses, the latter an evidence of vagus excitation. In addition, extrasystoles (usually auricular) were sometimes present. Such observations combined with the experimental and other data above mentioned, and the presumed action of digitalis upon the vagus nerve and centre make it probable that epigastric pressure sensitiveness, and "hunger pains" occasionally occurring during digitalis medication are in some manner due to the effect of the drug upon the vagus centre or nerves. Reasoning from analogy, the ready induction of vomiting from digitalis in some cases may be due to natural or acquired differences of vagal tone. It has been my experience that these occasional digitalis symptoms usually occur in young subjects who react readily and beneficially to the drug. The significance of this type of pain is twofold: 1. It is a definite signal of a full therapeutic digitalis effect; 2, it is important to differentiate it from the referred epigastric pains that sometimes accompany cardiac decompensation.

A slow pulse and extrasystoles produced by digitalis are usually regarded as contraindications to its further use. Circulation is probably carried on at a disadvantage when these arrhythmias are present, yet patients with exocardial affections—e. g., gastric disturbances, jaundice, etc.—may have bradycardia and extrasystoles and be actively at work without any circulatory disturbance. The question of continuation of digitalis when causing bradycardia or extrasystoles must be individualized. If the arrhythmia is present after a few doses and the patient is not improved, medication should be persisted in until the ordinary symptoms of digitalis poisoning appear, unless the pulse rate becomes less than forty-five a minute or the extrasystoles produce annoying symptoms, such as feelings of faintness and palpitation.

Old people with chronic bronchitis and emphysema sometimes present the following cardiac condition: The pulse is rhythmical, the cardiac area is normal to percussion, the orthodiascopic examination shows a slightly dilated aorta with the ventricular outline somewhat lower and flatter than usual; the blood pressure is normal or even subnormal for the

advanced age of the patient, though the visible arteries are tortuous and sclerosed; there is a systolic murmur at the apex and a systolic or double murmur at the base. These murmurs vary in intensity and often increase upon moderate exercise and seem to depend upon different degrees of dilatability of the aortic and mitral rings. The main complaint is dyspnea upon exertion. A few of these cases came to autopsy; the cardiac musculature is pale, flabby, and somewhat fatty in degeneration, there are small, sclerosed patches in the aorta and on the mitral valves. To derive proper benefit from digitalis in such cases, it must be administered at first in full, later in smaller doses over a long period of time.

The question of digitalis therapy in decompensation with cardiovascular disease and hypertension is important, particularly because it has frequently been held that digitalis increases blood pressure. Mackenzie (12) and Price (13) state that they had observed no such increase when the drug was given in therapeutic doses. In cases with systolic blood pressures of over 200 mm. Hg., the writer has given the drug repeatedly and sometimes continuously for weeks without detecting any relationship between occasional increased blood pressure and the length of time or dose of the drug. In one case of dyspnea and anginal pains of cardiorenal origin in a woman of fifty years, whose usual systolic blood pressure was 185 mm. Hg., digitalis was given for several weeks with excellent results. On one occasion the blood pressure rose to 220 mm. without discoverable cause and with no clinical difference in her condition. After three days the blood pressure returned to its previous level (185 mm.), where it has since remained. Observations of this kind, though isolated, show that unknown factors may cause rises in blood pressure and yet have no relation to the digitalis. High blood pressure in itself is no contraindication to the use of digitalis.

Occasional or frequent extrasystoles sometimes represent the first signs of decompensation in patients with myocardial and endocardial lesions. As stated, digitalis itself sometimes produces this arrhythmia (probably by increasing cardiac excitability), hence its use in cases of decompensation with extrasystoles is often questioned. The cause of this arrhythmia in broken compensation is not definitely known, though it seems probable that nutritional disturbances of the cardiac musculature consequent upon impaired circulation are important factors. Extrasystoles with decompensation constitute definite indications for digitalis. If improvement occurs the extrasystoles usually disappear. A typical history follows:

CASE I. S. F., male, aged fifty years, had nephritis and edema for several years. His systolic blood pressure was usually 180 mm. The cardiac area was enlarged to percussion, the apex beat diffuse, the first sound at the apex impure, orthodiastolic examination revealed an abnormally wide aortal arch. A polygraphic tracing showed ventricular extrasystoles. For several months the patient had been very dyspneic, slight exertion producing precordial pains. Digitalis was given; within one week his general condition markedly improved and the extrasystoles disappeared. Digitalis was continued for several weeks; the pulse remained regular.

Since digitalis sometimes produces heart block, its applicability to decompensated cases with this arrhythmia has been disputed. Despite recent intense study of heart block, all its etiological factors are

not known. It may be definitely stated that any lesion—tumor, gumma, calcareous deposits, etc.—which completely destroys the connecting auriculo-ventricular bundle, produces complete block. Autopsies of some cases of heart block have shown no lesions in the conduction system, and the clinical histories of other cases seem to show that heart block may occasionally be purely functional (14). A positive diagnosis of complete or incomplete block can be made only by polygraphic or electrocardiographic tracings. If complete block exists, digitalis is not contraindicated because it cannot increase the dissociation already present. It has been stated that digitalis may change an incomplete into complete block, a graver arrhythmia. Two such cases have recently been reported (15). One came to autopsy. Lesions involving the conduction system and part of the sinoauricular node were found. Cohn and Lewis (16) described similar pathological conditions in a case of auricular fibrillation and heart block lasting many years in which digitalis played no role in the arrhythmia. The other case was one of severe long continued decompensation; digitalis was given for several days, heart block and auricular fibrillation occurred and continued until death. There was no autopsy. These two cases do not offer sufficient evidence that digitalis alone was the cause of the block. In a case of complete heart block reported by the writer (17) in which the cause during life could not be definitely ascertained, digitalis was administered several times experimentally until vomiting was produced. There was no change in the dissociation, the only result being a subjective sensation of thumping in the chest. In auricular flutter (18), a condition in which the auricles beat rhythmically about 250 times a minute, a definite therapeutic attempt is made to produce block or to increase the block already present and thus diminish the ventricular rate. This shows that digitalis is sometimes given with the object of producing heart block. Mackenzie (19) reported a case of decompensation in a boy of sixteen years, in whom digitalis produced partial block, extrasystoles, and pulsus alternans. Medication was continued until the patient vomited. He was very much improved; the block continued five days after digitalis was stopped. It appears to me that the slight danger of changing an incomplete to a complete block by the use of digitalis may possibly be averted by the judicious administration of atropine; the latter may remove that block producing factor due to increased digitalis vagal tone and inhibition, and may not affect the direct action of the drug upon the conduction system.

The division of digitalis into two components, its action upon the vagus (and vomiting centre), and its action upon the cardiac musculature has led to therapeutic attempts to combine atropine and digitalis. Cushny, Marris, and Silberberg (4) studied the vagus component in cases of auricular fibrillation by noting the difference of ventricular rate before and after digitalis administration, with and without atropine sulphate. The latter was given subcutaneously. If, for example, the average ventricular rate was 100 a minute before digitalis and 140 after the injection of one fiftieth grain atropine sulphate, the increase—forty a minute—was ascribed to release by atropine from the normal cardiac inhibitory control. If

after digitalis administration, the average rate was sixty and became eighty after atropine, the difference—twenty—was considered due to the lessened inhibition produced by the latter drug. If digitalis slowing had been entirely due to increased vagal tone, atropine acceleration in each instance would have been the same, that is forty beats a minute. Hence the difference in acceleration after atropine presumably showed that the slowing was partly due to some effect of the digitalis upon the heart itself. The writer has studied the result of subcutaneous atropine injection of one fiftieth grain in cases of auricular fibrillation fully under the effects of digitalis and has noted either a slight or no increase in ventricular rate. This would show that slowing had been caused by direct digitalis action on the cardiac musculature. The practical aspect of a combination of atropine and digitalis is the attempt to prevent vomiting in susceptible patients and thus allow of longer digitalis medication. A brief outline of some cases thus studied follows:

CASE II. M. F., male, aged sixty years, suffered from chronic bronchitis, dyspnea, and asthmatic attacks for many years. The patient was cyanotic, physical signs of chronic bronchitis, emphysema, and myocarditis were present, the pulse was completely irregular (auricular fibrillation); he was given tincture of digitalis and Karrel diet. At the end of one week he was very much improved; digitalis was discontinued because of vomiting. After two weeks the drug was again given with the same results. On the third administration it was combined with atropine sulphate, grain 1/100, later grain 1/150, given subcutaneously. By this method digitalis was administered continuously for several weeks without vomiting and with excellent clinical results.

CASE III. M. S., female, aged twenty-seven years, had auricular fibrillation, a double mitral lesion, and a decompensated heart. Tincture of digitalis, minims fifteen, three times a day, was prescribed. Upon three occasions, after three days medication was discontinued because of nausea and headache. On two subsequent occasions digitalis was combined with atropine sulphate; once, one fiftieth grain was given subcutaneously when nausea was already present and continued in doses of 1/150 grain three times a day; the second time atropine and digitalis were given together. Upon both these occasions digitalis was given uninterruptedly for two weeks without nausea and the decompensation was relieved.

CASE IV. A. H., female, aged twenty-six years, had rheumatic endocarditis and mitral regurgitation. She had broken compensation and cardiac pains for several months. Tincture of digitalis, one dram daily in divided doses was given. Usually after a few days, medication was discontinued because of vomiting and headache, and the decompensation which had been temporarily relieved soon recurred. Caffeine, digipuratum, and tincture of strophanthus were substituted for digitalis without effect. Finally the tincture of the latter was combined with atropine sulphate, grain 1/150, given internally, three times a day. This was continued at two weekly intervals, with interruptions, for many months, and the patient showed improvement. Her appetite remained good. She finally decompensated again and died.

SUMMARY AND CONCLUSIONS.

1. The best single criterion of the amount and duration of digitalis administration is its clinical effect.

2. The beneficial effect of digitalis depends chiefly upon producing increased contractile power of the cardiac musculature.

3. The slow production of arrhythmias is usually coincident with full clinical effects of the drug.

4. If decompensation demands the continuance of digitalis, the rapid onset of arrhythmias does not contraindicate its further use.

5. Atropine sulphate, grain 1/150 to 1/100, three times a day, given internally or subcutaneously at the beginning of medication, occasionally prevents nausea and vomiting in susceptible individuals.

6. The hypertension of cardiovascular disease does not contraindicate the use of digitalis.

7. To derive clinical benefits quickly, digitalis should be given in full therapeutic doses.

8. When digitalis acts promptly in small doses, the effect is likely to be temporary. For permanent improvement, long continued medication is usually required.

9. Digitalis occasionally produces epigastric pressure sensitiveness, and "hunger pains" which appear to be due to heightened vagal tone. These symptoms precede vomiting by one or two days and indicate a full therapeutic digitalis effect. This epigastric pressure sensitiveness must be carefully distinguished from that sometimes caused by cardiac decompensation.

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1275 MADISON AVENUE.

CHRONIC INDIGESTION ASSOCIATED WITH CHRONIC APPENDICITIS.*

*With a Study of 280 Cases of Chronic Appendicitis
Taken from 2,700 Cases of Chronic Dyspepsia.*

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In preparing this paper, I have gone over the histories of over 3,400 cases of chronic indigestion in the clinic for diseases of the stomach and intestines at the Philadelphia Polyclinic, with which department I have been connected for over twelve years, and I have here tabulated the symptoms in all cases in which we believe there was a tender appendix. In some of these patients to the appendix alone were attributed the symptoms, in other cases there were other conditions associated or that appeared to be predominant. We also know that the appendix may be diseased without any local symptoms, all the symptoms being referred to another region of the

*Read before the Philadelphia County Medical Society, June 10, 1914.

abdomen. These cases especially offer serious obstacles to the making of a correct diagnosis.

Of these cases here collected there are 280, and these were taken from 2,700 histories, as the important points had not been noted on about 700 earlier histories.

These figures represent the occurrence of chronic appendicitis in 10.4 per cent. of cases of chronic dyspepsia. In these 280 cases the appendix was tender in all, and it might be incidentally added that the points of interest in most all cases were gone over by several members of the clinic staff; sometimes several members of the staff contributed their opinions; and, while it has been stated that a normal appendix is rare, also, that a diseased appendix may not be tender on palpating the right iliac fossa, these cases represent only those with definite local signs. Of these 280 cases, there were:

Sex.		Married.	Single.
Male	159	89	70
Female	121	77	44
Age	10-19	20-29	30-39
Male	9	10-19	40-49
Female	1	21	50
	2	75	50
	0	48	1,159
	25	20	8
		12	2,121

The greatest number of cases occurred between the ages of twenty and thirty years—almost fifty per cent. of the men, and about forty per cent. of the women; children not included.

Color.
White..... 246 Male..... 143 Female..... 103
Colored..... 34 Male..... 10 Female..... 24
In the white race the male sex outnumbered the female about forty per cent.; whereas, in the colored race the female sex predominates about eleven per cent. Whites: Fifty-eight per cent. male; forty-two per cent. female.

NATIONALITY.

United States, 139; white, 105; colored, 34; Russia (Hebrews), 113; Ireland, 7; Rumania, 5; Austro-Hungary, 5; Germany, 3; England, 3; Italy, 2; Poland, Porto Rico, Portugal, and Canada, one each.

The number of Hebrews constituted 42.4 per cent. of the white patients and outnumbered those of the United States (exclusive of the colored patients), who were 37.5 per cent.

Abdominal pain, which was the most common symptom after tenderness over the appendix, was present in 190 cases or 67.8 per cent.; and I have divided abdominal pain into the different regions as follows: In the epigastrium, eighty-two cases, twenty-nine per cent.; in the lower abdomen, ninety-eight cases, thirty-five per cent.; in both the right iliac fossa and in the epigastrium, ten cases, five per cent. In the lower abdomen pain occurred most frequently in the mid-abdomen. Occasionally—nineteen cases, 9.7 per cent.—the pain was general in character, and was localized in only nine instances, 4.7 per cent., to the right iliac fossa alone. Pain was referred to the left iliac fossa in two cases, 0.7 per cent.; eleven or 3.9 per cent. complained of pain all along the right side of the abdomen.

Pain varies in degree. Some patients complain only of a sense of discomfort in the abdomen, intestinal flatulence or fullness. Nearly one third, ninety or thirty-two per cent, did not complain of pain. Pain, when present, is nearly always intermittent, 185 cases out of 190 or 97.4 per cent.

The pain is colicky in between one third and one half or thirty-eight per cent. of cases, and irregular in time of onset and duration. In about twenty-five per cent. it is worse immediately after eating. In a small number—ten per cent.—it is worse in from one to two, three, or four hours after eating, and in about five per cent. it is relieved by the taking of food. In these latter cases, however, there is not the history of a definite, clear cut, so called hunger pain,

occurring at a definite time and definitely relieved by food as is seen in duodenal ulcer.

Pain may be occasionally referred to the back, or to the pelvis, especially in women. In two instances patients stated that their pain was worse in winter, and two complained also of pain at night. Pain is described as burning in a very small number of cases—five per cent. Pain after meals is usually not severe and varies in time of appearance.

The commoner symptoms are fullness and distress in 147 cases or 52.2 per cent.; belching in 141 or 50.1 per cent.

Constipation was complained of in less than one half the cases—118 or 41.9 per cent. There is occasional irregularity of the bowels, constipation alternating with diarrhea—fourteen cases, five per cent. There may rarely be continuous looseness of the bowels—diarrhea in ten, 3.5 per cent.—or the stools may be continuously watery, as in four, or 1.4 per cent.

Other symptoms are nausea—102, 36.1 per cent., and pyrosis was complained of in an equal number of instances. Regurgitation of stomach contents occurred in seventy-four—26.3 per cent. Patients complained of occasional headache and vertigo in less than twenty-five per cent.; 24.5 per cent. the former, and 18.8 per cent. the latter.

Vomiting, so common in the acute type of this disease, occurred in only forty-seven cases or 16.7 per cent. The appetite may be lost or variable in a small number of cases—15.6 per cent. for the former, and 3.55 per cent. for the latter. Usually there is no complaint of the appetite.

In only nineteen cases, 6.7 per cent., was there a history of definite recurrent attacks of appendicitis. In private practice the percentage of recurrence is much higher, while a majority of the cases operated in give a history of recurrent attacks of appendicitis.

The most important feature in connection with the physical examination is tenderness in the region of the vermiform appendix, and this sign was present in every one of these cases, or 100 per cent. Tenderness was also present in these cases in the epigastrium in thirty, or 10.65 per cent.; tenderness over the gallbladder in seven, or 2.5 per cent. Muscular rigidity over the right lower abdomen is almost never present in this disease and was found only three times, or in one per cent. The appendix was palpable in forty-two instances—14.9 per cent. Pressure over the appendix producing or causing referred pain to the epigastrium was found in only five cases, 1.8 per cent.

There was a history of hematemesis in only two cases, 0.7 per cent. Abdominal distention was present in twenty-four cases, 8.5 per cent. Tenderness in the region of the gallbladder or in the epigastrium was not necessarily directly due to the diseased appendix, but to associated conditions, or perhaps in some instances indirectly to the diseased appendix.

In reference to tenderness in the region of the appendix, time and time again I have examined cases with chronic dyspepsia in which there was no tenderness of the appendix, but upon reexamination I found the appendix quite tender, and in this

way even mild signs and symptoms become lessened and may temporarily almost entirely disappear. But that is the history of this disease, irregular in all of its signs and symptoms; and its exacerbations are of variable intensity.

It is now well recognized that diseased conditions of other abdominal organs may frequently be due to a diseased appendix. Of the associated conditions, those of the most importance were of the stomach, duodenum, gallbladder, and right kidney. There was dilatation of the stomach in thirteen cases—4.5 per cent.; chronic gastritis in nine cases—three per cent. Gastric ulcer was present in four cases—1.4 per cent.; duodenal ulcer in two cases—0.7 per cent.; disease of gallbladder, cholecystitis, in five cases, 1.8 per cent.; gallstones, two cases—0.7 per cent. The right kidney was palpable in seven cases—2.5 per cent. A mass was palpable in the cecum in six cases; other masses in right iliac fossa in five cases.

Other infrequently associated conditions noted were colitis, two cases; mass in ascending colon, one; jaundice, two; arteriosclerosis, three; palpable liver, one; gastropexy, eleven; splanchnoptosis, one; palpable liver, two; and cirrhosis of the liver, one.

Analysis of the gastric contents in these cases shows that the acidity may be normal, increased, or diminished. It has been stated that there is frequently a gastric hypersecretion, and retention of gastric contents is not uncommon, occurring in 17.68 per cent. of these cases in which it was looked for.

ANALYSIS OF GASTRIC CONTENTS IN NINETY-SIX CASES.

	Cases.	Per cent.
Total acidity normal, from 40 to 60.....	38	39.5
Hyperacidity, from 60 to 100.....	37	38.0
Hyp acidity, below 40.....	21	21.8

FREE HYDROCHLORIC ACID.

	Cases.	Per cent.
Normal, 10 to 30.....	54	36.2
Hyperacidity, 30 to 100.....	27	28.08
Subacidity under 10.....	3	3.1
No free acid.....	12	12.4
Mucus present.....	18	18.7
Gastric retention.....	17	17.68

Blood examination in thirty-five of my own private office patients showed that only two had a leucocyte count of between 7,000 and 8,000. Three cases had a leucocyte count of between 8,000 and 9,000, and twenty-seven patients all over 9,000; one had a leucocyte count of 10,200, and one had a leucocyte count of 11,520. One other patient had a leucocyte count of 13,640. From 7,000 to 8,000, two; from 8,000 to 9,000, three; from 9,000 to 10,000, twenty-seven; from 10,000 to 11,000, one; from 11,000 to 12,000, one; 13,640, one.

From these observations we know that there is a moderate leucocytosis in the majority of cases. Several examinations of the blood made in cases shows that this increase in the number of leucocytes is usually constant, but it may be transitory.

Of those same private office patients, occult blood was present in the feces in one case.

The symptoms in these cases extend over a period of from one to twenty years.

In conclusion, I wish to thank Doctor Sailer and Doctor Farr for permission to use this material from the clinic.

1934 CHESTNUT STREET.

NOSE, THROAT, AND EAR CONDITIONS.

*Their Diagnosis and Treatment in General Practice.**

BY RUFUS B. SCARLETT, M. D.,
Trenton, N. J.

Owing to the limited space at my disposal, and in order not to impose too much upon my reader's generous indulgence, I will attempt to confine my discussion, and only in a general way, to the diagnosis and treatment of a few of the more common conditions usually found in the daily practice of the medical man.

In this age of specialties, the old family physician, as he was commonly known, even as late as a decade or two ago, is fast disappearing, for, in a comparatively few years, the science of medicine has advanced with such wonderful strides, and to such magnitude, that it has become a physical impossibility for a single mind to absorb and do justice to all branches of medicine as taught and practised to-day. It is very essential, however, that the successful general practitioner should sufficiently fortify himself in the methods of diagnosis used in the various specialties, in order readily to determine the gravity of any particular case, and to be able to act accordingly with proper judgment and without the loss of valuable time. Every practitioner of medicine, especially he who is distant from the city, or otherwise out of reach of a specialist, should be able to use the head mirror with sufficient skill to be able to determine the existence of pathological conditions, in contrast to the normal, even in the depths of the respiratory tract. How much misery could be spared the patient suffering the agonizing pain of an earache, if the attending physician was only able to recognize at an early period, with the aid of the head mirror and speculum, the bulging membrane. With this knowledge, he could then quickly summon someone to release the tension by an incision in the drum and thus permit the escape of the pus, and also insure the graceful healing of the wound, instead of a ragged scar, which invariably happens when the drum is permitted to rupture of itself.

While the use of antitoxin has greatly diminished the number of fatal cases of diphtheria, and has lessened to a great degree the possibility of the blocking of the respiratory passage by the false membrane, nevertheless cases still occur in which interference of some sort becomes necessary in order to save the life of the small patient. One who is not able to pass the intubation tube will either lose his patient or send him through life with an unsightly scar, the result of a hurried tracheotomy. It is very seldom nowadays that the intubation tube is not sufficient aid to the treatment usually prescribed to relieve the embarrassed respiration.

The ability skillfully to remove a foreign body from the eye may be the means of saving the organ or preventing a sympathetic ophthalmia. Who knows?

This is enough evidence for the necessity of the general practitioner's acquainting himself with sufficient knowledge of the specialties to save life, or at

*Read before the Hunterdon County Medical Society, October 27, 1911.

least to furnish the necessary relief until proper aid can be summoned.

After these general remarks, we will now consider a few of the conditions encountered in general practice. Probably the most common condition within the nose that the family physician is called upon to treat is that of *acute rhinitis*, notwithstanding the fact that unless the patient is greatly inconvenienced, medical advice is seldom sought. Space need not be consumed to consider the diagnosis of this condition, as it is well known. The treatment is much more important. Many people do nothing for a cold in the head beyond letting Nature take its course, as the disease is ordinarily self limited. The treatment may be prophylactic, abortive, or curative, depending upon the cause of the attack. Those who are susceptible to frequent attacks of rhinitis should protect the body as much as possible against such conditions as favor their onset. The protective agencies of the body should be strengthened by regular and systematic exercise, especially in the open air. Grayson recommends, instead of medicine, good vigorous exercise several times a day, believing that "the quickened capillary circulation and the vigorous action of the sweat glands that accompany hard exercise are incomparably more beneficial than the merely passive leakage that follows the use of diaphoretic drugs. If in addition to this an abundance of water is drunk and the supply of food is greatly reduced—almost stopped, in fact—we may look for an amelioration of all the coryza symptoms in a much shorter time than if our main reliance is vested in quinine, belladonna, and opium combinations that have had too long a vogue." Cold bathing, gradual at first, furnishes an efficient stimulant to the relaxed vascular system. Victims of the uric acid diathesis should exercise discretion in diet. If the patient is seen within the early stages, institution of proper treatment may abort the attack, or at least shorten its duration. A mustard footbath, four grains of quinine, ten grains of Dover's powder, a hot lemonade, and a liberal covering of bed clothes will encourage free perspiration. Active catharsis should follow. The watery discharge in the early stage can be controlled by one of the coryza tablets on the market.

A satisfactory combination is the one suggested by Dr. S. MacCuen Smith, of Philadelphia, which is made up as follows:

R	Atropine sulphate,	gr. 1-600;
	Strychnine sulphate,	gr. 1-240;
	Arsenic acid,	gr. 1-100;
	Morphine sulphate,	gr. 1-10;
	Quinine sulphate,	gr. 1-4.
	Powdered camphor,	

M. ft. Tabella. Sig.: One tablet is taken every half hour until dryness in the throat is noted.

Usually the desired result is produced by the time six tablets are taken. Half of one tablet is sufficient for a child. Promiscuous use of these tablets without medical advice is to be condemned, because their administration after the discharge has become inspissated renders the patient more uncomfortable and the discharge more difficult of expulsion. Various powders containing such drugs as cocaine or morphine, or even both, have been strongly advocated, but their use should be guarded.

Any one of the common cleansing solutions may be advised to remove the excessive mucus. A good combination, suggested by Coakley in his manual, and one within reach of all, is composed of two parts of baking soda, one part of salt, to be mixed thoroughly. One teaspoonful of this preparation is dissolved in one pint of warm water and used freely in the nose. A protecting oil should follow the cleansing. During convalescence, tonics containing strychnine and quinine will be found efficacious.

Foreign bodies within the air passages are not infrequently the source of much disturbance, not only to the patient, but also to the physician. Children are very often victims. From the moment the youngster is able to creep, and throughout early childhood, the danger is ever present. The mouth is the usual depository for all articles within the grasp of the child's hand, but small pieces of wood, buttons, or any small article found on the floor, may find its way into the nose through the anterior nares. On rare occasions, a foreign body is forced from the throat into the nose through the posterior nares during a fit of coughing. Screw worms in the nose and ear have been reported, the fly having been attracted by a foul smelling discharge and depositing eggs before being removed. Adults are sometimes guilty of inhaling a foreign body into the lower air passages. This is to be more or less expected in those who persist in holding small articles in the mouth. During a fit of sneezing, the pin, collar button, nail, or whatever it may be, escapes, and the symptoms that follow are usually indicative of the lodgment of the foreign body in the bronchi or elsewhere in the neighborhood.

Substances of a foreign nature are found within the external auditory canal. Accumulation of cerumen seems to be the greatest offender. Much discomfort is felt when it becomes impacted. Other objects of an inanimate nature also find their way into the canal. Animate objects, such as roaches, fleas, bedbugs, house fly maggots, screw worms, and similar parasites sometimes find lodgment in the depths of the canal and cause much discomfort, in fact, great agony in some cases, by their activity.

The diagnosis is seldom difficult. In the child, usually the first indication of disturbance in the nose is the appearance of a discharge. At this point, the possibility of nasal diphtheria is to be eliminated.

The approach to the foreign body should be cautiously made to avoid further impaction. Secretions should be removed and the tissues reduced by the application of cocaine and adrenaline. The danger of this treatment is the susceptibility of children to cocaine; a small amount of a weak solution can be used, however, with impunity. The removal of the foreign body will depend upon its nature. A soft article, such as a bean, can often be removed with forceps or a hook, if the object remains intact. A better method, however, to remove any foreign body from the nose is to insert a blunt pointed hook beyond it and work it forward. Where parasites have invaded the nose or ear, their removal can be greatly facilitated by lessening their activity with chloroform, after which they can be readily removed with the syringe, forceps, or otherwise.

The removal of any foreign body from the ear

is frequently fraught with much difficulty, especially if it is beyond the isthmus of the canal. Only by the expert should removal be attempted with any form of instrument. The great majority of foreign bodies can and should be removed by syringing. This calls for a special technic, which unfortunately is not universal. Mere syringing of the ear will not suffice. The canal must be straightened, which is usually done by an upward and backward traction on the lobe of the ear. With a small cannula to the syringe, and under good illumination and direct vision, the stream is directed along the wall of the canal at different points in such a manner as to inject the fluid behind the foreign body and force it out, otherwise it will be impacted against the ear drum. The unskillful attempt to remove substances from the ear frequently sends these patients to the specialist with the canal chewed up, swollen, and bleeding.

The attempt to remove foreign bodies from the bronchi should be made only by one who has had experience and has developed sufficient skill.

Epistaxis is sometimes a perplexing problem to solve. Fortunately, Nature has endowed us with what may be called an automatic safety valve. As the result of this, bleeding frequently stops before much damage is done. The valve is not always in good working order, however, and artificial means must be resorted to. Notwithstanding that a vigorous effort is usually made to check nasal bleeding, one must not lose sight of the fact that such a condition may really be an effort on the part of Nature to relieve high blood pressure, as in arteriosclerosis. Then again, the hemorrhage may be the first signal of some constitutional disturbance of an infective nature. Measles, scarlet fever, diphtheria, whooping cough, cerebrospinal meningitis, pneumonia, influenza, erysipelas, smallpox, but especially typhoid fever may be ushered in with bleeding from the nose. Cases are on record in which great benefit has resulted from the free flow of blood from the nose. Hays (NEW YORK MEDICAL JOURNAL, September 24, 1910, p. 605) has the records of twelve cases of cerebrospinal meningitis, in four of which epistaxis occurred, followed by a drop in temperature and the recovery of the patients. Of the remaining eight patients, three succumbed to the disease. The most profuse bleeding and most difficult to control is usually postoperative.

The various infective and constitutional diseases will invariably give their associated symptoms. In the case of high arterial tension, 1, the bleeding starts rather suddenly; 2, is usually profuse, often lasting for hours and frequently occurring at intervals of a few days until the blood pressure is lowered; 3, and the local treatment is seldom efficacious. The usual styptics, caustics, and packing prove to be of little or no avail unless measures of a general nature are instituted to reduce the tension.

The treatment of epistaxis calls for the consideration of several factors. As a rule, in the great majority of cases, simple methods are readily effective, but if bleeding persists in spite of their application, as already suggested in my remarks, search must be made for some constitutional cause. Various remedies have been used in nasal bleeding with more or less success in certain cases. A preparation

of cocaine grains five, adrenaline minims twenty, distilled water, half an ounce, sprayed into the nose will prove successful in the majority of cases. Preparations of alum, tannic acid, zinc sulphate, lead acetate, and copper sulphate have advocates. If the bleeding point can be seen, it may be controlled by the application of a solution of silver nitrate, grains sixty to the ounce; a crystal of chromic acid fused into a bead on the end of an applicator; or even the actual cautery. In using any of the cauteries, however, one must guard against the great destruction of tissue that may occur, and rather aim as much as possible toward regeneration. If the bleeding is profuse and it is impossible to locate the point from which it is coming, douching the nose with hydrogen peroxide, followed by a solution of boric acid, and then packing the cavity will frequently give gratifying results. In using the peroxide, however, the possibility of infecting the accessory sinuses must be remembered.

If it is found necessary to apply pressure to the bleeding surface, it can readily be done with cotton or gauze, preferably the latter, with or without one of the astringent preparations. Proper illumination, obtained by the aid of the head mirror, and direct vision are necessary for success. If the gauze packing is soaked in sterile liquid petrolatum, the patient given the same preparation and a dropper, and instructed to make frequent applications while in the recumbent position, healing is encouraged and the easy removal of the gauze is made possible in twenty-four or thirty-six hours. Various devices for the relief of nasal bleeding have been suggested, but the simple measures mentioned appear to be most practical for the family physician. If tampons are resorted to, their long retention within the nose should be avoided to eliminate the possibility of infection of the accessory sinuses, and when inserted should always be preceded or accompanied by the insufflation of powdered bismuth subnitrate to lessen as much as possible the decomposition of the secretions. It is only on very rare occasions that the bleeding is so severe as to make it necessary to pack the posterior nares, and as the discussion of this method would consume considerable space, I will do no more than mention it.

The internal administration of medicines for nasal bleeding is of questionable benefit. Hypodermic injections of morphine have been advocated. It seems to work with advantage in keeping the patient quiet, even if it does not exert a hemostatic action. In case of bleeders, when the arterial pressure is low, large doses of strychnine nitrate occasionally appear to be highly beneficial. Internal administration of powdered opium grain one, with lead acetate half a grain, repeated hourly for three doses, is thought to exercise a coagulating influence. Brilliant results have been reported as the result of injecting ten drops of a one to 2,000 adrenaline solution into the upper lip on the side corresponding to the bleeding. Serum is now frequently resorted to in extreme cases, even diphtheria antitoxin being used in an emergency. In all cases of profuse bleeding, the patient should receive supportive treatment and careful nursing until health and strength have been restored.

Diphtheria as a primary affection in the nose is of rare occurrence, but its occasional similarity to

a foreign body within the nose causes me to mention it. The obstruction of the nasal passages, the excoriation of the nares by a thin, mucopurulent and frequently bloody discharge; the marked fetor of the breath; the lymphatic enlargement; and the existing toxemia should arouse suspicion. The examination of the anterior nares may show the presence of a thick, grayish pseudomembrane, but it is seldom that one can be seen. The symptoms produced by a foreign body are invariably unilateral; the discharge is not apt to be irritating; lymphatic involvement is unusual; fever is rarely present; and the characteristic toxemia is wanting. The microscope will remove the doubt.

The pharyngeal type of diphtheria is so well known that its detailed discussion seems to me as superfluous. I should like to call attention, however, to several interesting points, especially in the differential diagnosis. Streptococcus sore throat, mucous patches of secondary syphilis, and mycosis of the pharynx may cause trouble in the diagnosis, but I mention them only in passing. The most common condition with which diphtheria is confounded is tonsillitis. This is an interesting coincidence, because enlarged or diseased tonsils appear to be especially susceptible to the invasion of the Klebs-Löffler bacilli. Other conditions, however, may render the patient liable to infection. A particular weakness in this direction has been noted in patients who have suffered from scarlet fever. The difficulty in the diagnosis usually comes in the early stages when the institution of proper treatment means most, thus the necessity for a thorough knowledge of the conditions liable to cause confusion. We will consider only the one most common, viz., tonsillitis, the onset of which is sudden, usually with a chill, and only occasionally vomiting. Diphtheria develops more gradually, the chill is unusual, the temperature is a degree or two lower, vomiting is a common symptom, and the urine is very likely to become albuminous. The examination picture of the two conditions will show that the exudate in tonsillitis is limited to the tonsils, usually occurs in spots, is easily removed without leaving a bleeding surface, and shows no tendency to form again when wiped away. The tonsils are sometimes markedly enlarged, and an intense active hyperemia of the soft palate exists. The membrane characteristic of diphtheria is thick and of a dirty, grayish tinge, its margins are dark red and purplish in color. As the disease progresses, the exudate shows a marked tendency to spread beyond the confines of the tonsils, is removed with difficulty, leaves a bleeding surface, and is likely to reappear within a few hours. The size of the tonsil is little altered, although it is well to bear in mind that a chronic hypertrophy may have previously existed. The soft palate remains almost normal in appearance. The bacteriological examination is usually conclusive, showing streptococci, staphylococci, and pseudodiphtheria in one and the Klebs-Löffler bacilli in the other.

The constitutional treatment adopted is usually dictated by the symptoms that arise and the judgment of the medical attendant. The local treatment alone, therefore, is of interest to us here. Much relief of the swelling, congestion, and pain may be obtained by the external application of cold, either

in the form of compresses, ice cap, or cold coil. Gargles are practically useless and should not be employed. They not only cause great pain in the effort made to use them, but the fluid seldom if ever reaches the seat of the disease. Twenty grains of sodium bicarbonate to an ounce of water sprayed into the throat, will reach the spot and cleanse the throat of the thick, tenacious mucus. Hydrogen peroxide may also be used to advantage, either in full strength or diluted. The use of a thirty per cent. solution of argyrol, sprayed over the tonsils every two hours, will be found beneficial, as it manifests both astringent and antiseptic properties. When the disease begins to show signs of subsiding, recovery may be hastened by the administration of the astringent preparation of iron, potassium chlorate, and glycerin so frequently used in throat conditions. Convalescence should be encouraged by tonic treatment.

The last subject, but by no means the least important, that I shall consider is *tonsillar hypertrophy*. This includes enlargement of the pharyngeal tonsil, which is commonly spoken of as adenoids. Little need be said about the diagnosis beyond the citation of a few of the usual symptoms, and the mere mention of the systemic infections that have been attributed to the tonsils. The child usually shows a definite facies. There is difficulty, or even inability, to breath through the nose; the mouth is open; the respirations are noisy, especially during sleep; the nostrils are pinched; the susceptibility to recurrent attacks of cold is evident; a persistent coryza is present; stupidity of perception and digestive upset are frequently noted; interference with the normal ventilation of the middle ear takes place, thus producing deafness, and not infrequently infection of the middle ear cavity. All of these symptoms are of importance, but all are not necessarily present at the same time.

Literature is full of reported cases in which it is asserted that the source of infection was traced to the tonsils as the portal of entry. The list is a large one and includes acute articular rheumatism, various forms of heart disease, pleurisy, acute osteomyelitis, actinomycosis, nephritis, chorea, various streptococcus and staphylococcus septicemia, Hodgkin's disease, and numerous other conditions.

It has been fully proved that it is not always the large prominent tonsil that is the offender, but the small ragged, submerged, or buried one is as frequently at fault.

Much can be said concerning the treatment of these diseased glands. Numerous methods have been suggested. Caustics and astringents have been faithfully used and still have advocates, but in the light of our present knowledge, these methods are now considered timid and poor procedures. Various operations have been devised for the removal of the tonsils, and they all seem to have their virtues. No other point that I know of has caused such violent discussions in recent years in medical meetings as the treatment of hypertrophied tonsils. The selection of any particular operation depends upon the fancy and experience of the operator. My heartfelt sympathy goes out to the man who starts in practice with the idea that the removal of tonsils is a simple operation, and can be done almost any time and at almost any place, for, unless the Fates

smile kindly upon him, he will sooner or later meet his Waterloo. Experience soon teaches that the skillful performance of this operation calls for proper training just as much as the removal of the appendix.

In closing, I cannot do better than quote from a paper written five years ago and read before one of the societies in Philadelphia. Pyncheon (*Journal A. M. A.*, June 20, 1908, p. 2049) emphasizes the importance of this operation and states that it should not be underestimated. He calls attention to the fact that the difficulties to be encountered, beside operating in a small cavity, are "operating in the channel of respiration, which must not be occluded by blood or otherwise; occupying a field jointly with the anesthetist, who should always be given the preference; operating on a patient who may be said to be semiasphyxiated from defective respiration, whereby the blood has become overlaid with carbon dioxide and underoxygenated for possibly several years, thereby increasing both the difficulty and danger of the anesthesia; operating in close proximity to important vessels, and at all times in a region rich in blood supply, necessitating a field more or less obscured in blood; and operating in a field the nerves of which, when irritated, may by reflex action through the pneumogastric, unfavorably affect the heart's action."

A further quotation from the same paper and I am finished. In 1904, Packard (*Laryngoscope*, September, 1904) presented before the American Laryngological Association a tabulation of the fatal results of operations upon the nose and throat. Fourteen deaths from hemorrhage followed the operation for the removal of adenoids or tonsils or both. A few years later, the same author reported before the section in otology and laryngology of the College of Physicians, a sudden death following the removal of tonsils and adenoids. There was no more than the usual bleeding, and the patient had recovered entirely from the anesthetic and had conversed with those in the room. Symptoms of collapse suddenly appeared about six hours after the operation and the patient quickly succumbed. With such reports on record, one untrained in the specialty is justified in manifesting timidity in the performance of the operation.

78 NORTH CLINTON AVENUE.

THE URINE IN OLD AGE.

A Bacteriological Examination of Specimens of Urine from One Hundred Men, Each Over Sixty Years of Age.

BY HORACE GREELEY, M. D.,
New York.

Preliminary to a projected investigation of the bacteriology of the urine in chronic nephritis, and in order to gain some idea of the organisms most likely to be met with in the average individual of advanced years, I made this study. The specimens were obtained through the kindness of Doctor Severance, who is in charge of the medical service of Sailors Snug Harbor, that famous Staten Island

retreat for old tars, and I wish to make especial acknowledgment of his extreme courtesy.

The age of the subjects varied between sixty and eighty-seven years, and averaged seventy-five. Of the total one hundred from whom specimens were taken, seventy-five were actively about and apparently as healthy as any men of their age, while twenty-five were in the hospital division suffering chiefly from senile debility.

Collection was made in six inch test tubes, plugged with cotton and sterilized, into each of which one of the "captains"—all are, through courtesy at least, such—urinated, first having passed a portion of his bladder contents into another vessel in order to wash out the urethra to some extent. Specimens were allowed to sediment for twenty-four hours, and from each deposit a smear and a tube culture were made. Smears were stained by Gram, and cultures made in two per cent. dextrose-glycerin (five per cent.) nutrient agar, just before solidifying, in order to provide both aerobic and anaerobic conditions (on surface and beneath). Cultures were incubated twenty-four hours at 37° C. and smears of the various colonies developing made and stained by Gram. All urine specimens were examined for casts and albumin.

A smear was made from the nasal mucus of each individual at the time the urinary specimen was taken, and, stained by Gram, was examined to see what relationship might exist between nose and bladder, bacteriologically.

These smears, from urine sediment, from urine sediment cultures, and from nasal mucus, were then examined simultaneously, and, in such instances as the suspected nature of the organism observed justified, further cultivations of units from urine cultures were made on gelatin, blood serum, and peptone water. Following is a summary of results:

Organism found in urine.	No. of specimens.	Organism found in nose.	Chronic nephritis.
Enterococci	60 36	Staphylococci	4
Diphtheroids	8	Enterococci	
Diphtheroids and streptococci, and enterococci	5	Diphtheroids and staphylococci	1
Diphtheroids and enterococci	1	Diphtheroids, streptococci, and enterococci	
Osporidia and enterococci	1	Diphtheroids and enterococci	
Staphylococci	3	Osporidia and enterococci	
Staphylococci and diphtheroids	1	Staphylococci	
Diphtheroids and streptococci	1	Streptococci and diphtheroids	
Diphtheroids and enterococci	1	Diphtheroids and streptococci	
Streptococci	2	Diphtheroids and enterococci	
Colon bacilli and enterococci	1	Streptococci	
Colon bacilli and enterococci	2	Colon bacilli and staphylococci	
Friedlander's bacillus	1	Staphylococci	1
Osporidia	11	Streptococci and diphtheroids	
Osporidia and enterococci	3	Friedlander's bacillus	1
Staphylococci	4	Osporidia and staphylococci	2
Staphylococci	4	Staphylococci	
Staphylococci and Friedlander's bacillus	1	Staphylococci	
Diphtheroids and streptococci	1	Staphylococci and Friedlander's bacillus	
Pathogenic yeasts	2	Diphtheroids and streptococci	
		Pathogenic yeasts and streptococci	
Total	100 100		0

The main conclusion that may be drawn from this work, as is evident from inspection of the table, is that an organism found on the nasal mucosa may frequently be obtained from the urine, and that this may be due either to excretion processes or, which seems most probable, to a common specifically lowered resistance of the individual, showing where-

ever the local conditions are otherwise favorable to the requirements of the organism.

The variety of organisms found is not extensive, nor what might not be expected, with the exception of the oosporidia (16) and the yeasts (2). The culture tubes containing the latter developed a brick red surface coloring, and in one of them the organisms, beside the usual budding processes, showed a tendency to form segmented stems.

The cases of chronic nephritis (9) as indicated by casts and albumin in urine, were too few to justify any conclusion in regard to a possible causal connection of their bacteriology.

140 CLINTON STREET, BROOKLYN.

CHRONIC PARENCHYMATOUS NEPHRITIS WITH MYOCARDITIS.*

A Case Report.

By HENRY A. FISHER, M. D.,
New York.

CASE. The patient was a man, aged forty-four years, driver of a bread wagon, whose business calls were mostly in saloons, in all of which he had friends, which demanded his having one or more drinks at each place. He was of that large built German type, and had never been ill before. Both family and previous history was negative.

The patient caught cold during the great snowfall in March, 1914, but did not admit being ill until April 10th, when he called in a physician. He then complained of weakness, scantiness of urine, and swelling of the ankles and abdomen. The writer saw him first on April 27, 1914. His ankles were edematous, his abdomen was greatly distended, and he could not lie down because of dyspnea. The blood pressure was 115 systolic, 70 diastolic. The first cardiac sound was weak and valvular in character; there were no murmurs. The urine was 32 ounces in twenty-four hours, and showed a large amount of albumin, numerous hyaline and finely granular casts. He was placed on a standardized tincture of digitalis, 15 minims every four hours for two days, and then three times a day, and Basham's mixture, four drams, three times a day. The diet was regulated with restriction of fluids. In a few days, the abdomen was tapped and a pint of clear ascitic fluid removed, after which the ascites gradually disappeared and, with it, the edema of the ankles. At the same time, the urine gradually increased, and in about two months was up to 64 ounces in twenty-four hours, with a slight diminution in the amount of albumin.

Basham's mixture was then withdrawn with no effect on the amount of urine. The digitalis was reduced to 15 minims twice a day, then to once a day, and finally stopped. There was no diminution of urine until four days after the digitalis had been stopped, when it began to decrease. The digitalis was resumed twice a day, and the urine promptly increased. The blood pressure reached 130 systolic, 90 diastolic.

About three months ago, the urine again began to lessen in spite of the continued administration of the digitalis. By this time the evidences of cardiac weakness (dyspnea on exertion, dizzy spells) had disappeared. The urine measured 48 ounces in twenty-four hours. Continuing the digitalis, tablets of a granular extract of the cortex of the kidney, two four times daily were given. In two days the urine began to increase in quantity, and in four days measured 64 ounces in twenty-four hours. This dose of eight tablets a day was continued for two weeks, during which time the digitalis was withdrawn with no effect on the amount of urine, the daily amount remaining at 64 ounces. The tablets were reduced to four daily. For two weeks there was no change, then the urine gradually lessened, and at the end of the third week was only 44 ounces. Increase of the tablets to eight daily brought the urine to 64 ounces in three days, where it has remained for the past seven weeks on this dose.

Examination of the urine four weeks ago and again three days ago, showed absence of albumin and casts. At first the urea was about 11 grams daily, then it rose to about 15 grams, and at the last examination it was 25 grams.

This use of a granular extract of kidney substance to aid the kidney function has followed the work of Brown-Séquard and others. By the method of extraction, the unchanged enzymes of the cortex of the kidney, that is of the glomeruli and convoluted tubules, are made available for oral administration.

In view of the great interest in organotherapy, and its great success in some fields, the writer deemed this case worthy of mention.

312 LEWIS AVENUE, BROOKLYN.

Abstracts and Reviews.

THE MORE RECENT DEVELOPMENTS IN THE STUDY OF ANAPHYLACTIC PHENOMENA.*

By PROFESSOR HANS ZINSSER,
Columbia University.

When bacteria or other substances toxic to an animal are introduced into its body by some channel other than the gastrointestinal tract, the tissues of the animal respond with the production of substances intended to counteract the effects of the introduced substance and to protect the animal against it; that is, the animal is said to become immune. The substances elaborated to protect the animal against the foreign material are called antibodies, and so far as their functions are concerned, they may be of several different types. If they neutralize a toxin, they are called antitoxins, if they prepare the foreign substance or stimulate the leucocytes so that phagocytosis is more active, they are called opsonins, and there are many others, the names of which usually suggest their mode of action, as agglutinins, precipitins, bacteriolysins, etc. Inasmuch as these substances were first observed and studied in animals which had been made immune to some deleterious agent or pathogenic organism, they were also called immune bodies. It was subsequently found, however, that similar substances appeared after the introduction of any foreign protein material in solution, and even after the introduction of cells. As the foreign substance in these instances was not toxic or injurious to the animal, it was scarcely correct to speak of the reaction produced as one of immunity, and in fact not only was the response not one which protected the animal against danger from the subsequent introduction of the same substance, but it actually rendered the animal liable to injury from the reintroduction of otherwise innocuous material. This susceptibility has been named anaphylaxis, and is intimately associated with the problems of immunity as they concern us today.

The expression of the reaction of a hypersensitive animal to the reinjection of the substance toward which it has developed antibodies, is termed anaphylactic shock. Before passing to a discussion of the

*Read before the Medical Association of the Greater City of New York, December 7, 1914.

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, January 10, 1915.

mechanism of this reaction, it would be well to have a clear definition of just what is meant by anaphylactic shock. It may be defined: The injury, acute or slowly developing, slight or resulting fatally, which arises from the meeting of antigen and antibody in the body of an animal. The term, antigen, is applied to any substance which is capable of stimulating the development of antibodies when introduced parenterally into the body of an animal, and includes protein materials only, although these may be either in solution or organized, as bacterial or other cellular substances.

Studies in immunity and antibody formation have proved the existence of the antibodies in two forms; one free in the circulating blood, the other attached to the tissue cells of the animal. The presence of the antibodies in these two forms has led to the development of two schools in the study of anaphylaxis. One holds that anaphylaxis results from the union or meeting of antigen and circulating antibody and its theory is called the humoral theory of anaphylaxis. The second holds to the meeting of the antigen and the cellular antibodies as the mechanism of the production of anaphylaxis, and this is called the cellular theory. Certain objections have arisen to each of these theories, and it is possible to hold a middle course between them, calling upon each to explain certain of the phenomena.

Those who adhere to the humoral theory have advanced several explanations of the actual mechanism of anaphylactic shock. The most prominent of these is probably that championed in this country by Vaughan and his associates, who hold that the symptoms result from the parenteral digestion of protein with the liberation of the toxic fraction, which they have shown to exist in all proteins. Two theories are in turn offered as to the mechanism by which this protein digestion may be accomplished in the body. The one ascribes to the antibody the functions of an enzyme which has proteolytic powers and which is specific for only that protein primarily employed as antigen. The second theory supposes that the antigen is capable of adsorbing from the circulating fluid the antienzymes which are believed to be normally present, thus freeing the serum enzymes for an attack upon the antigen when it is subsequently introduced.

The humoral theory has much to support it, particularly the fact that the partial decomposition of proteins, either by enzymes or by certain other methods of hydrolysis, yields a toxic substance which on injection into a normal animal is capable of giving rise to symptoms indistinguishable from those of anaphylaxis. This toxic substance can readily be produced outside of the body by any one of a number of procedures, but for its liberation *in vivo* antigen, antibody, and complement are believed to be necessary. That complement is not an essential factor, however, has been proved in several ways. It was shown that complement did not act in serum rendered hypertonic by the presence of salt, and that the injection of concentrated salt solution just prior to the introduction of antigen into a sensitized animal protected the animal from fatal anaphylactic shock. This seems to prove that the complement did play an important role, but my associates and I found that if the protein poison were prepared

in vitro and injected into an unsensitized animal in solution in strong salt, no symptoms resulted, and in this procedure the complement could play no role.

Among the objections raised to the humoral theory, the most convincing one only need be cited. It has been shown that hypersensitiveness can be produced quite as readily passively as actively. This is done by injecting some of the serum of an actively sensitized animal into a normal one. The normal one then becomes capable of reacting typically with anaphylactic shock upon the injection of the original antigen. It was further shown that the degree passive of sensitization was more or less proportional to the content of the injected serum in antibodies. The objection to the humoral hypothesis lay in the fact that after the injection of the serum of a sensitized animal into a normal one, a certain period of time had to elapse before the second animal was capable of responding with anaphylactic shock to the injection of the antigen. This led to the idea that the injected antibodies had to become anchored to the tissue cells before anaphylaxis could be produced, and the incubation period was consumed in this anchorage.

Not only did this objection serve to discredit the humoral theory, but it was the original observation which led to the cellular theory. Other observations have been made in the last few years which have served to establish the cellular theory so firmly that it is at present almost universally accepted. Among these observations were the fact that isolated smooth muscle from sensitized animals was capable of reacting specifically to the antigen used in sensitization. This was true even after the most thorough washing of the muscle to free it from all trace of serum or blood, and Richard Weil has bridged the last gap in this theory by showing that the uterus from passively sensitized animals will not react if removed and tested within four hours after the injection of immune serum, although the retained blood in its cell spaces is laden with antibody.

The middle course between these two theories holds that the cellular antibodies are the ones most frequently concerned in the production of anaphylaxis, but that it is possible that the circulating antibodies may act to produce anaphylaxis under certain conditions at present little understood. Thus, it has been occasionally observed by several competent workers that the simultaneous injection of antigen and antibody into a normal animal gives rise to anaphylactic symptoms. This is not accidental, for the symptoms are typical, although usually mild in type.

This anomalous phenomenon cannot yet be positively explained, but we may offer a suggestion which has certain evidence of a collateral nature for its support. It has been shown by many investigators that both antigen and antibody are probably colloidal in structure, and it is well established that the interaction of two colloids may be inhibited by physical and chemical conditions. This may even be demonstrated to occur in the test tube. I suggest, therefore, that the reason that we so rarely see anaphylaxis occurring from the simultaneous injection of antigen and antibody, is that the conditions usually present are such as to favor colloidal inhibition. It is only rarely that colloidal interaction

can occur, and in these instances we have the anaphylactic phenomena from the simultaneous injection of antigen and antibody.

The occurrence of hemagglutination has been invoked to explain the phenomenon of anaphylaxis, but there is little to support this theory and it may be dismissed without further comment. The production of anaphylaxis when cells are used as antigen is the same as that with dissolved protein after the preliminary step of cell lysis has been accomplished by the host.

The application of the phenomena of immunity, or antibody formation, and the phenomena of anaphylaxis to disease is of importance in giving us an understanding of the significance of the symptoms. After the infecting bacteria have gained entrance, there is an incubation period during which the host is developing antibodies to the bacterial proteins. At the end of this time symptoms begin which are probably the expression of a slowly developing anaphylactic reaction between the bacterial proteins and the antibodies produced. Two factors may enter to prevent or cut short these symptoms; either the host may react with the production of bactericidal substances which destroy the organisms directly, or there may be opsonin production which results in the ingestion and destruction of the organisms by the phagocytes. It is probable that these antibodies and true antitoxins constitute our only means of development of true immunity.

Treatment of Purpura hæmorrhagica.—E. W. Peterson, in the *Post-Graduate* for July, 1914, reports the case of a boy two and a half years of age who manifested bleeding from both ears and the nose, together with a petechial rash on the feet, legs, hands, and arms. Later large ecchymoses appeared on the forehead, under the eyes, and on the thighs and legs, and the stools, examined microscopically, showed blood. Other methods of treatment having, in similar cases, proved uncertain in results, it was determined to perform a blood transfusion. The patient's brother, seventeen years old, acted as donor. While waiting for the results of the hemolysis and agglutination tests—which proved satisfactory—the author administered about twenty c. c. of whole blood subcutaneously. Later, between 250 and 300 c. c. of blood was given intravenously by the indirect syringe cannula method of Linderman. The effect was completely successful, the boy's appearance and disposition—previously irritable and lacrymose—undergoing an immediate change and the tendency to hemorrhage ending abruptly. No recurrence had taken place over a month later. In blood transfusion precautions are taken against hemolysis, infections, syphilis, agglutinins, and isoagglutinins, and even against overdoses. Whether direct or indirect transfusion is the better method is not the subject of this note, but it is well to test the merits of both by actual experience in the laboratory. In one method of indirect transfusion, a glass vessel is used to hold the donor's blood—a vessel furnished with a smooth orifice to fit the vein, as in an injection. In this there are several very obvious advantages as experience will show; the method is also one of great facility.

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLIV.—How do you treat prostatitis? (Closed.)

CLV.—What is your experience with high frequency currents in the treatment of tumors of the bladder? (Answers due not later than February 15th.)

CLVI.—What is your experience in the treatment of pellagra? (Answers due not later than March 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best paper submitted in answer to Question CLIII was awarded to Dr. John I. Fanz, of Philadelphia, whose article appears below.

PRIZE QUESTION NO. CLIII.

THE VALUE OF CONDENSED MILK AS A SUBSTITUTE FOR THE MOTHER'S MILK.

BY JOHN I. FANZ, M. D.,
Philadelphia,

Demonstrator of Biology, Jefferson Medical College.

The general practitioner, guided by his textbooks and by his college course in pediatrics, generally looks with disfavor on condensed milk as an infant food. Many babies, however, which would appeal to the doctor as hopeless malnutrition cases, are raised successfully by the laity, after the adoption of condensed milk feeding. Cases possibly are known to the reader, which apparently did poorly on everything, until condensed milk, as a last resort, was tried, ultimately with success. These successful instances compel us to lay aside our hypocritical views, the result of reports of intricate research, and to assume an attitude based on experience. The chief objections to condensed milk will first be enumerated in order to be fair to its opponents.

1. Its high content of cane sugar, a disaccharide of questionable digestive quality in regard to infant alimentation. As high as forty-seven per cent of saccharose or cane sugar has been shown to be present in some brands of condensed milk.

2. The possibility of impaired digestive qualities through the coagulation of some of its protein in manufacture.

3. The possibility of disruption of the perfect fat emulsion of normal milk during condensing, and its subsequent interference with digestion.

4. A relatively low fat content.

5. Absence of alkalinity.

The points which favor the use of the product under discussion are the following:

1. Its purity, especially in regards to its low bacterial content—practically zero.

2. Its readiness in handling and small bulk of the stock.

3. Its readiness of preservation, even during the summer months.

4. Uniformity of strength and simplicity in making up the feeding units.

The digestibility of cane sugar in the young infant is denied by many writers, yet a few hold that it can be assimilated after being broken up into simple sugars by the enzyme invertase. The age at which this enzyme appears in the infant is questionable and also variable. The small percentage of cane sugar in dilutions of condensed milk has been observed to do no harm, and even at its worst, has nothing but a slight laxative effect if not digested. This is often desirable, especially in infants with a tendency to constipation. The sour gaseous stools of carbohydrate indigestion are not due primarily to sugar, but rather to abnormal flora of the intestine causing putrefaction. In such cases of fermentative diarrhea, purges are necessary, followed by the alkalies, such as milk of magnesia or lime water, together with cultural tablets of the lactic acid bacillus, rather than total abstinence from carbohydrates.

Coagulation of protein in condensing the milk is of but slight importance, chiefly because the temperature at which it is evaporated is never or rarely above 128° F., this temperature being about twenty-five per cent. below the pasteurization point. In sterilizing the milk *in vacuo* (at two and one half pounds' pressure), a temperature of 212° F. is maintained momentarily, just prior to the sealing of the cans. Preservation of the milk is effected mainly by the cane sugar, rather than by continued high temperature, which might injure the product.

The emulsion of fat in condensed milk, as a matter of fact, is not broken or "cracked" and is just as perfect as that of normal cow's milk. The author has made frequent microscopic tests of various fat emulsions. Recent examinations of samples of milk delivered during cold weather often showed cracked emulsions in the highest degrees, thus making condensed milk, in respect to perfect emulsion, far superior for infant feeding at this time of the year.

In testing condensed milk for alkalinity, we meet with practically the same slight acidity as in normal cow's milk. This condition is due to certain phosphates and lactic acid, and can easily be remedied by the addition of lime water.

At this point a comparative approximate tabulation of the essentials of woman's milk, fresh cow's, and condensed milk is valuable.

	Woman's. Per cent.	Fresh cow's. Per cent.	Condensed cow's milk. Per cent.
Proteins	2	1.55	8.84
Fat	3.78	3.64	10.74
Milk sugar	7	1.88	13.4
Calc. shreds	0	0	46.1
Salt	0.31	0.7	1.87
Water	82	88	23

The caloric value of condensed milk per gram equals 3.40 large calories, while that of normal cow's milk equals 0.69 calories per gram.

Condensed milk, in the author's experience, was used especially during the summer months by patients of mediocre means, with complete satisfaction as to economy and the best results for the infant. The success at this time was no doubt due

in great measure, to the low bacterial content and to the readiness with which each feeding could be made up separately, thus insuring absolute freshness.

Infants with protein and fat indigestion, that were previously on modified milk and did very poorly, were placed on a weak condensed milk mixture and invariably did well, contrary to expectations. Condensed milk feedings were not kept up indefinitely, however, but modified milk was reinstated in some cases, after the patient had recovered, usually in four to six weeks. One or two cases were observed in which condensed milk was used to reinforce breast milk feeding where the mother's supply was scarce. These did fairly well throughout the nursing period. Several infants were nursed throughout infancy artificially on varied dilutions of condensed milk, and did exceedingly well. One baby in the author's family, was fed entirely on condensed milk after a trial and failure of other methods. In addition to personal experience in the matter, a number of mothers were questioned from time to time as to the methods used in artificially nursing their children. A fairly large percentage of these women stated that they had used condensed milk to feed their infants over a part or the whole period of nursing with great success.

Methods of preparing condensed milk mixtures. Dilutions of a well known brand were made as follows:

1. The weakest dilution contained one part condensed milk, two parts lime water, and thirteen parts warm boiled water, making a solution of one in sixteen. The percentage of the essentials in these solutions may be figured out from table given above. This solution was used in young infants during the first month. Feedings were repeated at intervals of two hours, giving ten daily and two nightly feedings of two ounces each.

2. During the second month of infancy, the strength was increased, a solution of one in twelve being used. The intervals remained the same while the amount was raised to three ounces instead of two at each feeding.

3. During the age interval between the third and eighth month, a dilution of one in eight was used—one part condensed milk, one part lime water, and six parts warmed boiled water. Feedings were arranged at intervals of three hours, six during the day, one at night, giving from four to seven ounces at each feeding.

4. During the age interval between the eighth and the twelfth month, a dilution of one in four was used, condensed milk one part, lime water a half part, water two and one half parts. Children were fed at intervals of three hours, six times during the day only, using about seven or eight ounces at each feeding. Occasionally a teaspoonful of cream should be given, in order to compensate somewhat for the slight lack of fat. This should be placed in one of the feedings with the condensed milk mixture.

At or about the time of weaning, when the baby is gradually introduced to foods of the table, condensed milk may be spread as a thin layer on a well baked cracker or a piece of toasted bread. As a concluding remark, it may be said that condensed

milk is invaluable for feeding the infant on ship-board or when traveling, when nothing is available but a pocket alcohol stove and water for diluting.

2914 WEST ALLEGHENY AVENUE.

Dr. J. C. Applegate, Professor of Obstetrics, Temple University, Philadelphia, writes:

I have always regarded modified cow's milk as the best substitute for mother's milk, holding condensed milk and other artificial foods in reserve for the exceptional cases and as a temporary expedient for infants who have not thriven well, when the fat and protein content in their food have been too high; but the startling mortality with bottle fed babies, compared with the breast fed, especially in the large cities—seven to one in Philadelphia, where modified cow's milk is largely used—indicates either that the food is not ideal or is not being properly modified.

A careful analysis of condensed milk and the results obtained from its use, force the conclusion that a standard brand, scientifically prepared as it is, in definite proportions, can safely and to advantage, be substituted for mother's milk more frequently than in the exceptional cases and for "bridging over" purposes.

Condensed milk is cleanly, palatable, uninfluenced by heat or cold, is always ready for use, and is easily prepared. The average mother lacks the necessary knowledge of technic in the modification of cow's milk and unless she can afford to purchase certified milk in definite proportions—and the vast majority cannot—it would be better for her to use that food with a definite percentage of fat, protein, etc., and dilute with plain boiled water in the proportions, one to sixteen, one to twelve, or one to eight, as the age and condition may require, all of which are made clear by chart with condensed milk.

In early infancy and in obstinate digestive disturbances in young children, for complete and rapid assimilation, it is absolutely necessary that the fat content of the food administered should be between one and two per cent., also that the protein should be well diluted.

One of the most common causes of diarrhea and other digestive disturbances in infants, is the excess of fat in the food, under which circumstances condensed milk is an excellent substitute because of the close similarity between it and breast milk as to taste, ease of assimilation, and composition. Breast milk contains a little higher percentage of fat. During the early puerperal period, the average mother's milk contains three per cent. or more of fat, 1.5 per cent. protein, and six to seven per cent. carbohydrates, while an analysis of a standard and well known American brand of condensed milk, when properly diluted for early infancy, shows, 1.5 per cent. of fat, 1.25 per cent. protein, and 6.5 per cent. carbohydrates (1.10 per cent. of which is sugar of milk). It is not unusual to control the fat diarrhea of the breast-fed infant by administering a laxative to the mother, have her dilute her milk by drinking copiously of water, and restrict or abstain from eating foods that tend to enrich her milk, which is further evidence that the food formula containing the medium percentage of fat, is the best, whatever it may be.

Furthermore, in the manufacture of condensed milk, on account of the scientific process through which it passes, the butter fat globules are very finely and thoroughly subdivided and broken up, making them quite assimilable. The casein is also markedly acted upon and finely subdivided, so that when it enters the child's stomach and is acted upon by the rennet, the rennet cake so formed in the infantile digestive tract is almost identical with the rennet cake formed when the child takes mother's milk.

On account of the parallel between mother's milk and condensed milk, it is an efficient adjunct—as well as substitute—when insufficient breast milk is being secreted.

One of the objections to the continued use of condensed milk is, the possibility of anemia, scurvy, or rickets, but this danger is minimized when it is understood that in the manufacture of condensed milk, in the presence of heat in the vacuum, the formation of lactose, etc., the sucrate of lime is formed, which is one of the most readily assimilated forms of lime and enters directly into the formation of bone and nerve tissue. At the appropriate time, a cereal gruel or cream may be added to the milk and at the appropriate age, fruit juices may be administered between feedings, as with other milk products, to prevent the complications referred to. The caloric value of the condensed milk referred to above is 130.63 large calories to one ounce of milk.

Infants and children should not be fed as a class, but as individuals. No food will agree alike with all children, and while I would not discountenance the great value of scientifically modified cow's milk, condensed milk is a safe, clean, and uniform modified cow's milk scientifically prepared and should occupy a more prominent place in the infant's dietary.

3540 NORTH BROAD STREET.

(To be continued.)

Therapeutic Notes.

Treatment of Simple Anemias in Young Children.—Marcel Maillet, in *Presse médicale* for July 11, 1914, points out that in children less than one year of age anemia may be caused by poor milk, excessive feeding, or less frequently insufficient feeding; in those older than one year a similar condition may result from an unduly prolonged milk diet, weaning too suddenly, or the administration of food not suitable for young children. Suitable changes in the diet should be made in both cases. In children over one year, barley, lentil, or other similar porridges, or yolk of egg—all articles rich in iron—may be given, though due trial and selection will have to be made, the same articles not being suitable for all cases. In children fourteen to sixteen months old, raw meat may be given, especially if there have been manifestations of subacute enteritis with diarrhea. During fifteen to twenty days in each month, from twenty to forty grams (5 to 10 drams) of the meat may be given, frequently with a little dilute hydrochloric acid in the form of lemonade and a small amount of pepsin. Only when the gastrointestinal condition has

improved should iron medication be taken up in these cases.

In anemia of syphilitic origin Maillet recommends intramuscular injections of benzoate or biniodide of mercury, the dose being two to four mgm. (1/32 to 1/16 grain) daily in children less than one year old and five mgm. (1/12 grain) in those between one and two years. Two to four series of ten injections each, with ten day intervals between series, should be given. Iron should not, however, be neglected; in some cases in which neither mercury nor iron alone gives sufficient results, combination of the two leads to a rapid regeneration of the blood. The dose of iron should be 0.1 to 0.2 gram (1½ to 3 grains)—of one of the iron salts—per diem.

Arsenic, in the anemias of young children, has yielded benefit within a few days in the hands of a number of observers, but in anemia of digestive origin there is some likelihood that the drug, even in moderate doses, will increase the anemia. Frequent blood examination is therefore in order if this drug is used. Iron, given as the lactate, tartrate, subcarbonate, or glycerophosphate, gives more prompt and lasting results than arsenic. The tincture of ferric chloride, in doses of ten to thirty drops, is another preparation which is convenient for use in infants. At times the remedy is not well absorbed, as indicated by a dark coloration of the stools. In this event, one or two teaspoonfuls of lemon juice or dilute hydrochloric acid lemonade may with advantage be given one half hour after meals. If the drug is not well borne when taken by mouth, subcutaneous injections of cacodylate or citrate of iron—0.03 gram (½ grain) in every one c. c. (16 minims)—should be administered. Treatment with iron for twenty days is generally sufficient in the simple anemias of young children. In the more severe forms, however, the treatment must often be continued for two or three months, the remedy being given twenty days in each of these months. Careful hygiene and a stay in the country or at some mountain resort are to be borne in mind as important or even indispensable measures complementary to the drug treatment. Subcutaneous injection of twenty to thirty c. c. (5 drams to one ounce) of normal saline solution on alternate days for a month is sometimes a useful procedure, though in tuberculous or syphilitic infants it has been known to cause febrile reaction. Stimulation of the hematopoietic tissues by means of the x ray, and the administration of cholesterylin as an antihemolytic agent, are measures indicated more especially in severe forms of anemia—pernicious, splenic, or pseudoleucemic.

Intramuscular Administration of Quinine.

J. Tertius Clarke, in the *Journal of Tropical Medicine and Hygiene* for September 1, 1914, protests strongly against suggestions recently made that intramuscular use of quinine salts be abandoned on account of a supposed risk of causing the development of tetanus and the inefficiency of the method compared with other routes of administration. The danger of tetanus, he holds, has been exaggerated, and for practical purposes need not be taken into account. Slow absorption has been given as a reason for not employing the intramuscular route,

but this is possibly an argument in its favor, as absorption by this route is practically continuous, and some quinine remains in the blood for a long time after the injection, ready to kill any sporulating organisms, whereas if quinine is otherwise administered, e. g., by the intravenous route, the whole may be eliminated before sporulation takes place. In the author's experience many patients have become so convinced of the superiority of the intramuscular method that, even though they cannot be persuaded to take quinine by the mouth, they actually ask for the injections. In very many instances he has observed a fall of temperature after intramuscular injections, where no influence whatever had been exerted by quinine taken by mouth.

Treatment of Anorexia in Tuberculosis.—G. Lemoine, in *Revue de thérapeutique médico-chirurgicale* for June 1, 1914, is stated to recommend the administration by mouth of hepatic lipoids to stimulate the liver and promote hunger in tuberculosis. If this measure, which is in many cases effective, fails, sodium phosphate may be tried:

R Sodii phosphatis,3v (20 grams);
Aque,3x (300 grams).

M. Sig.: One tablespoonful in a half glassful of water one hour before breakfast and dinner.

This may be used for a prolonged period without any untoward result. Additional stimulation may be effected if each dose is administered in a cupful of a hot infusion of hops.

Preparations containing pepsin are also of value:

R Acidi hydrochlorici,3i (4 grams);
Pepsini,3ii (8 grams);
Spiritus vini gallici,3v (20 grams);
Aque destillate,3x (300 grams).

Misce et fiat solutio.

Where necessary, the acid secretion of the stomach may be increased by giving a half glassful of tepid Vichy water before each meal. The peptic glands may be stimulated by giving a cupful of well skimmed meat bouillon one half to one hour before meals.

Of the bitters, cinchona is best:

R Quininae hydrobromidi,gr. viiiss (0.5 gram);
Tinctura cinchonae composita,3iiiss (100 grams);

M. Sig.: One teaspoonful in a cupful of an infusion of hops.

Nux vomica in small doses may be used where there is muscular atony.

Treatment of Aortic Aneurysm.—R. Houlié, in *Bulletins et mémoires de la société de médecine de Paris*, May 8, 1914, reports a case of aneurysm of the ascending portion of the aorta, with distressing symptoms, in which, after intravenous injections of mercury cyanide and gelatin had proved useless, percussion of the spine of the seventh cervical vertebra according to Abrams's method was tried, with signal success. The percussion was practised daily for five minutes, and after the third treatment the pain disappeared, palpitation and dyspnea were greatly lessened, and the patient was enabled to lie down on either side. After eight sittings the patient was able to walk five miles without distress, and resumed his work as a baker. The enlarged veins on the anterior chest wall showed marked shrinkage, the area of aortic dullness likewise, and the loud diastolic murmur previously noted became much less pronounced.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal and The Medical News.

A Weekly Review of Medicine.

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Address all communications to

A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,

66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transpor-
tation through the mail as second class matter.

Cable Address: Medjour, New York.

NEW YORK, SATURDAY, FEBRUARY 6, 1915.

A NATIONAL TAX ON PHYSICIANS.

Under the national antinarcotic law, every physi-
cian, dentist, and veterinarian who either handles
or prescribes any opium or coca leaves, or deriva-
tive or preparation of either, must register before
March 1st with the United States Collector of In-
ternal Revenue for the district in which he resides
or has an office. He must pay a fee of thirty-four
cents and will be given a registry number. He
must attach this registry number to all prescrip-
tions for such drugs written by him, must sign his
full name, give the full name and address of the
patient, date the prescription, and have thereon his
office address; otherwise the prescription cannot be
legally compounded.

Any physician who wishes to purchase, sell, give
away, or keep in his possession any of these drugs
or preparations must obtain from the Collector of
Internal Revenue for the district in which he lives
a book of duplicate order blanks. All orders for
such drugs, whether addressed to wholesalers or
retailers or to other physicians, must be written on
these official order blanks, the physician retaining
the duplicates. Prescriptions for patients should
not be written on these official order blanks, but on
ordinary prescription blanks. Where the physi-
cian or dentist dispenses these drugs to patients
on whom he is in personal attendance, he need

not keep any record of their disposal, but if
he furnishes them to any one on whom he is
not in personal attendance, he must keep a full rec-
ord of the transaction.

Every person having any of the drugs or prepara-
tions named in his possession on March 1st, is re-
quired to make an inventory of the quantity and
character of such drug or preparation and, before
March 15th, file this inventory, accompanied by a
sworn statement, with the United States Collector
of Internal Revenue for the district in which he
practises. *The penalty for failure to comply with the
law is a fine of not more than \$2,000, or imprison-
ment for not more than five years, or both.* This is
a United States Internal Revenue law; that means
that it will probably be enforced; our readers are
therefore urged to comply with the law at once.
A letter should be addressed to the U. S. Col-
lector of Internal Revenue for ———, giving the
name of the city—asking for an official blank appli-
cation and instructions. This should be done im-
mediately, for all must be registered on or before
March 1st. Preparations containing less than two
grains of opium or one eighth grain of heroine, or
one grain of codeine, or one quarter grain of mor-
phine in each ounce, and preparations used ex-
clusively for external use and not containing cocaine,
are exempted from the provisions of the act.

The law applies to all who handle or deal in such
drugs, including importers, manufacturers, whole-
salers, retailers, physicians, dentists, and veteri-
narians. Copies of the full text of the law and
regulations will be forwarded on request free to any
of our subscribers not in arrears. Government,
State, county, or municipal officials only are exempt
from the provisions of the act. Nurses and em-
ployees of persons registered under the act are
covered by the registration of their employers.

CANCER IN FRANCE IN RELATION TO FUEL.

A very suggestive study has been made by C. E.
Green, F. R. S. E., upon the distribution of cancer
in France, which indicates that there may be some
relation between the sulphurous fumes given off
from coal and charcoal, and a high death rate from
cancer; his charts, published in the December issue
of the *Edinburgh Medical Journal*, are at least pro-
vocative of thought.

Mr. Green states that in the charts made by M.
Bertillon, showing the death rate per 100,000 from
cancer in France for the years 1906, 1907, 1908, it
may be seen that in the southern half of France
there is a great area which does not contain a single
department where cancer is frequent, and that in the

northern half of France, there is a great square, corresponding to the geological basin of which Paris is the centre, where the death rate per 100,000 inhabitants is four or five times as great as in the south, and yet the geological basin does not seem to indicate any condition underlying the increase, for although Brittany on the west and the Vosges region on the east are out of the geological basin, and also very free from cancer, yet Pas de Calais, Nord, and Somme, which do not form part of the basin, suffer much from cancer. Bertillon points out that it is chiefly cancer of the digestive tract, not including cancer of the mouth, which has increased so rapidly during the last thirty-five years in Paris, as well as in Amsterdam, and notes that the few cases of cancer found among the Hebrews in Algeria and Amsterdam, compared with other nationalities, had suggested a series of researches on the relation of meat diet to cancer, but that these had led to no result. He also observes that in a strikingly consistent way the distribution of cancer in France shows that in all regions the death rate was nearly always twice as high in the cities as in the adjoining country places.

Mr. Green, equally struck by these remarkable charts, believes that the cause must be connected with the nature of the fuel burned in the various departments, coupled with the fact that the farther one goes north, the colder the country is in winter, and the greater the amount of fuel that is burned. Mr. Green had already shown in previous papers (*Ibidem*, October, 1912, and August, 1913) that "there is a mysterious connection between the fuel used and cancer incidence." In Nairnshire cancer seems to be actually nonexistent in the districts where nothing but a light nonsulphurous peat is burned, whereas it is very common in that part of the country where coal is used, commoner indeed than in other districts in Scotland. In Orkney again cancer is common in a few districts where nothing but peat is burned, but it is a peat which is like coal in character and has a very high sulphurous percentage." The malignant tumors that prevail among the natives of the high valley of Kashmir in India, and which have been attributed to the chafing of the *kangri* or small braziers of fuel, which the natives carry under their clothing to warm their bodies, are undoubtedly due to the fumes of the fuel, which, on examining specimens sent to him, he found to be charcoal. Mr. Green therefore wrote to the presidents of the Departments of France, asking for information along these lines.

"The results," he remarks, "seem to be striking. . . . It will be seen that wherever nothing but coal is burned, the town death rate is very high; where wood and a little coal is burned, the death rate in both town and country is average; where

only wood is burned the death rates are very much below the average . . . with the exception of the departments of Cantal, Aveyron, and Tarn. The préfet of Cantal wrote that coal was used almost altogether in both town and country; and the préfet of Aveyron, the adjacent department, wrote that though wood was used exclusively in the country, coal was used in the towns, yet the death rate from cancer in those departments was very low."

This, at first, seemed unaccountable, but when the préfet of Cantal sent some of the coal used for domestic purposes, it was found to be a beautiful hard, glistening, jetlike substance, without any impurities such as pyrites, and wholly unlike most coal used for domestic purposes. On analysis it showed the same low sulphur content as the peat burned in those districts in Scotland where cancer is so rare. This discovery was as much a surprise as was the high death rate in Orkney, Scotland, where only peat was burned, and which seemed to be an exception to the rule until it was discovered that the Orkney peat had a very high sulphurous content.

Mr. Green concludes: "The results of such inquiries as I have made, into the fuel conditions of those districts where cancer is rife, seem to me to point conclusively to the fact that the etiology of malignant disease has some subtle connection with fuel and its products of combustion, a connection which lies somewhere about the difference between wood and charcoal, and between the coal of Aveyron and Cantal, and that of the north of France."

THE SCHICK TEST.

Schick, who is a worker in the von Pirquet clinic in Vienna, has recently been doing some interesting, and important work in diphtheria. The health departments in various American cities have been adopting a new method, the Schick test, which fills a place in the handling of diphtheria cases. We all know that many uncertainties have beset the physician in the prevention and treatment of diphtheria. This applies especially to the questions of susceptibility and proper doses; the Schick test seems to be a trustworthy aid.

The object of the Schick test, which is an intracutaneous and not a subcutaneous test, is to detect susceptibility or immunity to diphtheria. The technic may be given as follows: One fiftieth of the minimal lethal dose of diphtheria toxin for a guineapig is diluted up to 0.1 c. c. of fluid and is injected into and not underneath the skin, a small hypodermic needle with a platinum point being used. A raised whitish spot about the size of a half dollar is formed. Within twenty-four to forty-eight hours, the test proves either positive or negative. If posi-

tive, it means that the patient or individual is susceptible to diphtheria, in which case there appears a reddish blue coloration of the elevation about the point of injection, and an accompanying slight edema, which usually disappears in about forty-eight hours, but leaves a slight pigmentation. A negative reaction means that the individual is apparently immune to diphtheria at the time of the test; and as a consequence the characteristic reaction just described does not occur. In some cases we may have a false reaction so that a second injection is indicated. It is said that the false reaction is due to the broth and probably occurs in two or perhaps three per cent. of the cases.

What is the interpretation of this test? It has been found that the blood of many normal individuals (according to Schick ninety-three per cent. of the newborn, fifty-seven per cent. up to one year of age, thirty-seven per cent. from two to five years of age, and fifty per cent. from five to fifteen years of age) contains diphtheria antitoxin in sufficient quantities to give natural protection or immunity. It would be useless to inject antitoxin into the system of persons whom we knew to be insusceptible, and it was the original object of the test to determine the susceptible and the insusceptible individuals so that proper administration of antitoxin could then be carried on in a thoroughly scientific manner.

The Schick test is of great value in the detection of susceptible individuals during a diphtheria epidemic. It should be a guide for the injection of prophylactic or immunizing doses of diphtheria antitoxin, and thus aid us to avoid both expense and trouble when such treatment is not necessary. But this test has been found of even greater usefulness. It has proved of value in the direct treatment of diphtheria. It is useful in the determination of the curative dose of antitoxin. The chief effect of the injection of antitoxin is its protective influence against new toxin entering the system following the antitoxin inoculation. Schick and his coworkers found that a quantity of antitoxin representing 100 units of antitoxin to each kilogram of body weight has the greatest possible effect on any toxin which may subsequently (to the injection of the antitoxin) find its way into the system, and that an amount of antitoxin corresponding to 500 units to each kilogram produces the maximal antitoxin effect, whether the toxin is injected at the same time as the antitoxin or twenty-four hours later. As a result of his findings, Schick advises that antitoxin be injected as early as possible, and preferably intramuscularly. With respect to the dose, he finds that a single injection of 100 units to each kilogram of body weight is sufficient for mild and moderately severe cases; in more severe cases he advises a dose correspond-

ing to 500 units to each kilogram. The Schick test was employed in these experiments to determine individual degrees of susceptibility or immunity.

Schick further finds that persons exposed to and not immune to diphtheria (this susceptibility having been determined by his test) receive all the antitoxin that is necessary when the dose corresponds to fifty units to each kilogram of body weight. It has also been observed that there is not much retroactive effect from the administration of antitoxin. This no doubt is the cause of fatal cases or of unsuccessfully treated cases.

A conclusion of the greatest importance arrived at by Schick as a result of the work is this: A single dose of the properly determined quantity is all that is necessary, repetition of the injection being unnecessary or of no value unless an underdose has been previously given, in which instance the dose advised for the severest cases should be given. Remembering that one kilogram is equal to about two and a fifth pounds, accuracy in administration cannot be too carefully observed.

The advantages of this test are numerous; among the most important, we may enumerate the saving in expense, the saving in inconvenience, the prevention of unnecessary serum reactions, the exact prophylactic and curative dose obtainable, and the general lifting of the problem of antitoxin administration into a higher plane.

THE ACTIVITIES OF THE DEPARTMENT OF HEALTH.

We wonder how many physicians of this city share the views expressed by our correspondent in his letter printed on another page of this issue of the JOURNAL; apparently he had not read the remonstrance in our editorial columns on December 19, 1914. Observation of the activities of the city department of health during many years has convinced us that it does not exceed in any way the privileges granted to it by law in its endeavors to safeguard the health of the community. It is, of course, undeniable that over zealous individual medical inspectors and nurses have, at times, done an injustice to private physicians; we are, however, assured that these acts did not represent official policy. So far as any "encroachments" by the department are concerned, most openminded physicians must admit that, save in a few isolated instances, the situation is really quite the reverse.

Almost invariably the private physician has benefited by the activities mentioned by our correspondent. School medical inspection, Wassermann tests, provision of bacterial vaccines, campaign against patent medicines and quackery, propaganda for routine physical examinations of persons over fifty

years old, educational measures urging people to seek competent medical care—have not all of these, while benefiting the community as a whole, been of special help to physicians as a class?

It is true that success in the prevention of disease has a decided influence on the practice of physicians. Not so many years ago a death rate of over twenty per mille was regarded as nothing out of the ordinary. Last year New York city's rate was less than fourteen. Inasmuch as we may safely estimate ten cases of serious illness for each death, the decrease in the number of cases of illness in recent years is considerable. Shall we then abandon all further efforts in preventive medicine, or shall we continue and cast about for other means to improve the economic position of physicians generally? There can be but one reply, preventive medicine must go on. What then are some of the remedies for the loss of private practice? Fewer but better trained physicians; a compulsory practical year in medical education; reorganization of dispensaries; proper supervision over contract practice; laws facilitating the collection of small debts—these and other remedies are at our command.

RATTLESNAKE VENOM IN EPILEPSY.

Dr. Ralph H. Spangler, who has contributed several times to the *JOURNAL* (September 3, 1910; September 9, 1911; September 14, 1912; April 5 and October 4, 1913) the results of his treatment of epilepsy with rattlesnake venom, returns to the charge, despite the adverse criticism excited by his reports, in the *Interstate Medical Journal* for January. After citing the favorable evidence of Fackenheim, Boston, Woodruff, Mays, Keatley, and Calmette, he states that he has personally administered the venom in over 300 cases of epilepsy and has received written reports from 131 physicians with similar although less extensive experience. Among his conclusions are that rattlesnake venom modifies the severity of epileptic attacks, lengthens the interval between them, improves the general health and metabolism of the patients, influences favorably the mentality, causing disappearance of the typical apprehension and fear, and enables the therapist gradually to withdraw the bromides. Better, he says, a patient with an occasional seizure, but a clear mind and healthy body, than one with his health undermined and his mentality dulled by the use of bromides and other sedatives.

ANTITETANIC INJECTIONS AND ANAPHYLAXIS.

Dr. Alfred S. Gubb, director of an auxiliary hospital at Aix-les-Bains, writes to the *Lancet* for January 23d to warn those who are treating tetanus by injection against the danger of anaphylaxis. If any patient, for example, was to contract diphtheria or to be exposed to it in the near future, he would probably receive an injection of antidiphtheritic serum with serious results. Doctor Gubb has personally told every one of his serum immunized patients to inform his doctor that he has been injected, so that due caution may be shown in the event of other serum injections becoming desirable, and he believes this warning might well be a matter of routine.

News Items.

Changes of Address.—Dr. M. Borrow, to 1885 Madison Avenue, New York.

Dr. E. G. Maupin, of 151 East 127th Street, New York, to 608 Court Street, Portsmouth, Va.

New York Physicians' Mutual Aid Association.—At the annual meeting of this association, held on Tuesday, January 10th, Dr. H. J. Boldt, Dr. Godfrey R. Pisek, and Dr. J. S. Waterman, of Brooklyn, were elected directors to serve for three years.

Harvey Society Lectures.—The eighth lecture of the series will be given at the New York Academy of Medicine on Saturday evening, February 13th, by Dr. John A. Fordyce, professor of dermatology and syphilology at Columbia University, on Some Problems in the Pathology of Syphilis.

Doctor Flexner to Speak in Philadelphia.—On Tuesday, February 9th, Dr. Simon Flexner, of the Rockefeller Institute for Medical Research, will deliver an address on Poliomyelitis before the Philadelphia Pediatric Society. At the close of the lecture a reception to Doctor Flexner will be held at the Hotel Rittenhouse.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, February 8th, Samaritan Hospital Medical Society; Tuesday, February 9th, Pediatric Society; Wednesday, February 10th, Philadelphia County Medical Society; Thursday, February 11th, Polyclinic Ophthalmic Society, Pathological Society; Friday, February 12th, Northern Medical Association.

New York Academy of Medicine.—A program prepared by the board of health was presented at a stated meeting of the academy held on Thursday evening, February 4th. The following papers were presented: The Diagnosis and Treatment of Tetanus, by Dr. Matthias Nicoll, Jr.; Recent Developments in the Prevention and Treatment of Diphtheria, by Dr. William H. Park; Lines of Progress in Future Child Hygiene Work, by Dr. S. Josephine Baker; New Procedure in Infectious Diseases, by Dr. L. I. Harris; the Revised Sanitary Code, by Dr. Haven Emerson.

Death of a Specialist in Milk.—William J. Rogers, who died at Orange, N. J., on February 1st, in his seventy-second year, was one of the best informed men in the country concerning milk and its problems. He was the seventh man to become associated with the late Gail Borden and was for many years president of the Borden Milk Company, a position in which he availed himself of the unusual opportunities to become acquainted with milk in all its aspects, scientific as well as commercial. To his powerful but unobtrusive efforts much of what has been accomplished in furnishing pure milk to infants must justly be ascribed.

Military Hygiene and Sanitation Exhibit at the Museum of Natural History.—The department of public health of the American Museum of Natural History is preparing an exhibit of military hygiene and sanitation, dealing with the health of armies, the hygiene of the individual soldier, and general problems of camp sanitation. One of the most important single exhibits is a model of the flea which is a carrier of bubonic plague. The history of bubonic plague is shown by reproductions of a number of early paintings and by a series of maps illustrating the geographical spread of the disease during epidemics.

Philadelphia Civil Service Examinations.—On Monday, February 15th, the Philadelphia Civil Service Commission will hold examinations for the following positions in the medical service of the Department of Health and Charities: Resident physician, salary \$600 to \$900 a year; resident physician, salary, \$1,300 to \$1,500; intern (residence and citizenship waived), no salary; resident physician, with opportunity for promotion, salary \$720; hospital nurse, salary \$600 to \$720; city nurse, salary \$900; drug-gist, salary \$600; agent for prevention of disease, salary \$1,500; assistant bacteriologist (local residence waived), salary \$1,400 to \$1,500; fourth assistant bacteriologist (local residence waived), salary \$1,000. For full information regarding these examinations address the Philadelphia Civil Service commission, room 875, City Hall, Philadelphia.

Examination for Principal of Training School for Nurses.—Among the positions for which the New York State Civil Service Commission will hold examinations on February 27th is that of principal or assistant principal in the Training School for Nurses, of the New York State Hospitals for the Insane; salary of principal \$300 to \$1,200 and maintenance. Open only to women at least twenty-eight years of age who are graduates of a high school or have an equivalent general education and who are registered nurses in New York State or are eligible to take the examination for registration. If graduated from a training school attached to an institution for the insane, candidates must have had at least nine months' actual training in a general hospital training school, and if graduated from a general hospital training school they must have had at least nine months' actual training in a hospital for the insane. They must also have had experience in an executive capacity in a training school for nurses. Appointments are expected in the State hospitals at Binghamton and Ogdensburg.

Personal.—Dr. George F. Sullivan, of Hoboken, N. J., has been appointed professor of ophthalmology at the New York Polyclinic Medical School and Hospital.

Dr. William H. Howe, of Phelps, N. Y., State commissioner, formerly deputy of health, has been appointed State medical inspector of schools by the Board of Regents.

Dr. Henry P. Walcott, of Boston, has been elected president of the Harvard Alumni Association.

Dr. E. Paher, of New York, has returned from abroad and has opened an office at 180 Lexington Avenue.

Dr. Charles H. Duncan has been elected an honorary member of the New York County Veterinary Society, on account of the successful use of autotherapy in the treatment of disease in animals by members of the society.

Dr. Milton J. Rosenau, professor of preventive medicine at Harvard Medical School, has been appointed pathologist to the Massachusetts State Department of Health, and Dr. Eugene R. Kelley, of Seattle, has been made director of the department of communicable diseases.

Dr. F. Fillmore Burtis, 612 West 137th Street, New York, formerly coroner's physician for Schenectady county, is now convalescent from a severe illness.

Dr. E. F. Bashford has resigned as superintendent of the Imperial Cancer Research Fund, a position which he held for eight years.

Dr. Gordon K. Dickinson, of Jersey City, has been appointed president of the board of managers of the Hudson County Tuberculosis Hospital and Sanatorium; Dr. James F. McKee was elected vice-president.

Relief Fund for the Belgian Profession.—The treasurer of the Committee of American Physicians for the Aid of the Belgian Profession reports that the following contributions to the fund were received during the week ending January 30, 1915: Dr. C. H. and Dr. W. J. Mayo, Rochester, Minn., \$100; Miss Margaret E. Reed, Chicago, \$1; Dr. E. L. Neff, Pittsburgh, \$5; Dr. F. P. Sprague, Boston, \$50; Dr. Caspar W. Miller, Wallingford, Pa., \$50; Dr. John T. Bottomley, Boston, \$25; Dr. Henry W. Frauenthal, New York, \$25; Dr. Edwin Sternberger, New York, \$10; Captain W. A. Powell, M. C. U. S. A., Nogales, Ariz., \$5; Dr. Frederick Fraley, Philadelphia, \$10; Dr. George W. Ely, Pittsburgh, \$5; Dr. Samuel C. Plummer, Chicago, \$5; Dr. R. W. Hodges, Baltic, Mich., \$10; Dr. Ellen A. Stone, Providence, R. I., \$10; Dr. Charles A. Elberg, New York, \$25; Dr. F. M. Hicks, San Antonio, Tex., \$10; Dr. Marion Marsh, Worcester, Mass., \$2; Ohio Valley Academy of Medicine, Bellevue, Pa., \$25; Dr. M. P. Messinger, Oakfield, N. Y., \$2; total, \$375. Previously reported receipts, \$1,791; grand total, \$2,166. Previously reported disbursements, \$1,650; disbursements during the week ending January 30th, \$440; total disbursements, \$2,090; balance, \$76.

The committee is constantly in receipt of heartrending reports regarding the sad plight of Belgian physicians and their families. The urgency of the situation is compared to a great conflagration, where promptness of action doubles and trebles its value. Attention is called to the fact that February will be a hard month in Belgium, with great suffering from severe weather added to other trials. Arrangements have been perfected by which contributions are being promptly converted into supplies. Two hundred boxes of food were purchased last week.

Health Bureau Organized in St. Paul.—Dr. Cornelius Williams, of St. Paul, has been elected president of the newly organized health legislative bureau, and Dr. H. W. Hill, secretary. This bureau comprises representatives of the different State health organizations, the Federation of Women's Clubs, and the State labor bureau. The object of the bureau is to urge legislation affecting the health of factory workers, child welfare, industrial hygiene, etc. It will also seek to increase the powers of the State health officials.

Philadelphia Pediatric Society.—Officers for the year 1915 were elected as follows at the annual meeting of the society held on the evening of January 12th: President, Dr. William N. Bradley; vice-president, Dr. John F. Sinclair; treasurer, Dr. Frederick Fraley; recording secretary, Dr. Maurice Ostheimer. Dr. Howard Childs Carpenter, Dr. Charles A. Fife, Dr. J. Claxton Gittings, Dr. Samuel M. Hamill, Dr. Howard Kennedy Hill, Dr. John A. Kolmer, Dr. William Duffield Robinson, and Dr. S. S. Woody were elected to membership in the board of directors.

Gifts and Bequests to Hospitals.—Bequests of \$10,000 each were made by the late Helen Louis Merrick to St. Timothy's and Germantown Hospitals in Philadelphia and to the Cosmopolitan Hospital in Venice, Italy.

Holding that a bequest of \$50,000, in the will of James F. Hope, should go to the Philadelphia Hospital for the Treatment of Contagious Diseases, Judge Gummy filed an adjudication in the estate, January 15th, in the Orphans' Court, awarding a balance of \$1,099,248.55 for distribution. Specific bequests of one fifteenth part of the estate each were made to the Presbyterian Hospital and the German Hospital.

A trust fund for the establishment of a hospital in connection with Washington University, St. Louis, is created by the will of Mrs. Eliza McMillan, which was filed in the Probate Court on January 27th. The will disposes of an estate valued at \$4,000,000 to \$5,000,000. The hospital is to be known as the McMillan Eye, Ear, Nose, and Throat Hospital. The university, however, is to receive the bequest only if the son of Mrs. McMillan leaves no child. The hospital may be established as a separate department of Washington University, or it may be operated under the direction of the medical department of the school. It is estimated that if the contingent bequest becomes operative it will be more than one million dollars.

Civil Service Examinations to Fill Vacancies in the Philippine Service.—The United States Civil Service Commission announces that examinations will be held on Tuesday, March 2d, to secure a list of persons eligible to fill the following positions in the Philippine Service: 1. Bacteriologist and pathologist in the Bureau of Science of Manila, P. I., with a salary from \$2,000 to \$2,500 a year. The duties of the position will be to carry on research work in the laboratories of the bureau, combined with the regular routine bacteriological and pathological work. The degree of M. D., or Ph. D. from a college or university of recognized standing is a prerequisite for consideration for this position. 2. Specialist in mental and nervous diseases; salary, \$3,500 a year, with subsistence, quarters, and laundry. The duties of this position will be to organize and administer an insane asylum to be located on an estate of six hundred acres, to exercise general supervision over the farm work, and to train a staff of nurses and attendants for this special work. Graduation from a medical school or college of recognized standing and at least two years' experience in hospitals or institutions for the insane are prerequisites for consideration for this position. 3. Medical inspector and surgeon; salary, \$3,000 a year. The duties of this position will be to take charge of the health station at Manila or in the provinces, as the Philippine Director of Health may require, and to attend to such surgical work as may be assigned in the Philippine General Hospital. Graduation in medicine from a medical school or college of recognized standing and at least three years' experience in surgical hospital practice are prerequisites for consideration for this position. These positions are open to men only. For information regarding the proper application blanks and for further information regarding the scope of the examinations, address the United States Civil Service Commission, Washington, D. C.

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

November 23, 1914.

Röntgen Sterilization, by L. Goerl.—Although this method of sterilization was introduced by the author in 1906, several years elapsed before it was taken up by gynecologists, and even at the present time the choice of patients suitable for the method, the limitations, and technical features are too little understood. The most valuable guide is the age of the patient; younger patients bear operation better than older ones, but, not responding so favorably to x ray treatment, should be excluded unless there is some special indication. The quickest results are secured in ordinary climacteric hemorrhages; prompt cessation of bleeding from myomas and from metritis after forty years of age, can also be secured with very few treatments; the ray often leads to direct shrinkage of the myoma. Pain is relieved almost immediately. Menstrual disturbances are particularly amenable; are favorably influenced whether sterilization is complete or not. Of special value is the use of the ray in patients past middle life who are exsanguinated and feeble, for there is not only a cessation of the bleeding almost at once, but a direct stimulating effect on the patient, hastening recovery. Two methods are advocated in gynecology; the one calls for longer exposures over a moderately large area and using filtered rays to prevent burning the skin, the other calls for the use of very hard rays for brief intervals and applied in succession over very small areas. Goerl advocates the former method as more economical and as more certain in the hands of the average practitioner on account of the greater ease with which the ovaries can be brought into the range of influence of the ray when a moderately large field is exposed at one time.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

November 14, 1914.

Disturbances of the Fluid and Salt Equilibrium in Cases of Constitutional Obesity, by Max Duering.—The writer has studied five cases of this nature and finds that a large part of the excess in weight depends on the retention of water. He is unable to tell whether this is due to abnormal osmotic processes on the part of the cells, or to an insufficiency on the part of the kidneys, but his patients seem to have been neuropathic; he cites a number of cases that show an influence of the nervous system upon the function of the kidney. One patient lost considerable weight in six days on a salt poor diet, but regained it in five days of nervous excitement following the receipt of a letter. Other results he obtained were curious; thus with some patients the weight increased with albuminous food of normal salt content, and with muscular exercise, while on a milk diet and rest, the amount of urine excreted was increased and the patients lost in weight. In some the thyroid did not seem to have reached full development and the weight declined under thyroid treatment and rest.

November 10, 1914.

Prophylaxis of Tetanus, by C. Arnd and F. Krumbein.—The method recommended is the free

use of carbolic acid so that the entire organism is kept under its influence. This is done by subcutaneous injections or by the administration of salol.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

November 5, 1914.

Gastrogenic Diarrhea and the Occurrence of Achylia pancreatica with Achylia gastrica, by A. Bittorf.—While it has been proved positively that there may occasionally be a total absence of pancreatic secretion, this is a very rare occurrence and the majority of the cases of so called achylia pancreatica are diagnosed on the finding of an abnormal number of incompletely digested muscle fibres in the stools, along with creatorrhea and steatorrhea, and some reduction in the trypsin content of the feces. Bittorf has subjected these findings to a close analysis and comes to the conclusion that an actual reduction of the trypsin content of the feces is seldom proved. He believes that the presence of many undigested muscle fibres can be accounted for by the absence or reduction of the gastric secretion and the increased rate of peristalsis in these cases. He has shown that the increase in the rate of peristalsis is very slight in all portions of the small intestine, but that it is marked in the colon. Thus the muscle fibres are less well digested than normally before reaching the duodenum and their further digestion is diminished by their more rapid evacuation. The trypsin content of the feces is often normal, contrary to the general belief, and the slight steatorrhea present may be due to the rapid peristalsis. The increased peristalsis is due to the presence of a catarrh of the large bowel resulting from the lack of the antiseptic action of the gastric secretion. In brief the facts are that these cases seldom have a true achylia pancreatica, but are in reality simply cases of achylia gastrica associated with a secondary colonic catarrh.

Ortizon Pencils, by J. Ruhemann.—These consist of a solid compound of hydrogen peroxide with urea; the pencils on becoming moistened slowly liberate the peroxide. They are made in several sizes. The author has found them of service in the treatment of deep infected wounds resulting from bullets, and of sinuses and fistulous tracts in which it is impossible to accomplish thorough cleansing by means of irrigations.

November 12, 1914.

Röntgen Ray and Light Treatment of Wounds, by Kromayer.—In badly lacerated wounds and those which have been infected, the process of healing is associated with the exudation of a large amount of serum and leucocytes. The process of absorption of this exudate and the deposition of scar tissue is very slow and leads to an unnecessarily abundant production of cicatricial tissue. If the process can be hastened and the total scarring reduced much waste of time and considerable disability will be avoided. This is possible by either of two means. In wounds that are not on the free surface the use of the Röntgen ray in doses just sufficient to produce erythema accomplishes both of these ends. When the wound is deeper the same desirable results may be attained by the use of the harder rays, screened to facilitate penetration and to protect the overlying skin. In the early course

of wounds, before healing has begun to advance, the ray is of no value. Such is not the case with the use of light rays, and these find a considerable field in superficial granulating wounds in hastening healing and epithelialization, at the same time tending to reduce superabundant granulation tissue. This treatment is also of value in surface wounds, after the healing has advanced, to hasten the resorption of the exudate and to minimize scar production. As in the case of the Röntgen ray the dose is to be small, usually just sufficient to produce an erythema. Either a carbon filament lamp, the quartz lamp, or the direct rays of the sun may be employed, and if given in sufficient doses one is probably as effective as another.

Urinary Excretion in Infants, by Engel.—The author has definite records of the frequency of micturition and amount of urine voided at one time or in a period of twenty-four hours. Infants receiving about 800 c. c. of fluid and passing about 500 c. c. void between twenty and thirty times a day. Increase or decrease in the fluid intake and urinary output alters the frequency proportionately, and infants receiving from 1200 to 1600 c. c. of fluid void as often as seventy times daily. Rest, activity or excitement is the only factor which influences the frequency of micturition other than the amount of urine secreted. In sleep, or when the infant is quiet there is practically no micturition, while during activity or excitement voiding is frequent. It makes no difference whether the child sleeps during the night or the day, the total amount of urine passed diminishes during this period, and if it awakes for only a quarter of an hour urine will be voided several times in this brief interval. The average volume of single voidings lies between twelve and eighteen c. c., although in certain cases it may rise to fifty or sixty, or even as high as ninety c. c. The largest single micturitions are usually those occurring during the night when the frequency is reduced.

WIENER KLINISCHE WOCHENSCHRIFT.

December 17, 1914.

A Case of Mixed Infection of Typhoid and Cholera, by R. Doerr and F. Weinfurter.—In the course of typhoid the patient suddenly became cyanotic; the stool which had been pea soup in character became rice water. This change was observed on the twentieth day; during the day there were six stools. The temperature, which had been 38.4° R. the day before fell to 36.6° R., fluctuating between this point and 37° R. up to the time of death on the evening of the same day. Autopsy showed typhoid at the end of the second week. The contents of the small intestine were not rice water in character but were stained with biliary pigments and had a distinctly fecal odor. Cultures were made from the gallbladder and pulp of the spleen. Typhoid bacilli were demonstrated but no cholera bacilli. A culture from the small intestine showed typhoid and colon bacilli. As the incubation period of cholera is only five to seven days the patient was either a "cholera carrier" or he was infected with the cholera bacillus at the end of the period of incubation of typhoid or in the first days of the illness and the cholera infection was hindered in its development by the presence of the typhoid bacilli in the

blood and only appeared after the blood had been freed from typhoid bacilli.

The Destruction of Vermin with Sulphur, by R. Grassberger.—Subjecting clothes, etc., to moist heat in the form of steam at a temperature of 100 to 104° C. is sufficient to kill all bacteria and vermin; also all spores, etc., which may subsequently develop. Some of the disadvantages of this method are that some clothes, especially furs, are ruined; and stains caused by blood burn under these conditions; rusty water forms on the fixtures of the rooms in which the steaming is carried out and drops on the clothes; at times the wood of the wagons on which the clothes are piled oozes and saturates the clothes; the clothes, if packed too tightly, are wrinkled so that ironing will not remove the wrinkles. These objections are valid only when technic is faulty. Another method is the formaldehyde vacuum steam at 60° C. There is some doubt whether lice are killed by this method. Sulphur is employed in two forms: Bars of sulphur are burned in pans or various acids of sulphur are burned in special apparatus. The effect in both instances is due to the poisonous fumes of the acids of sulphur. The acids of sulphur burn easily and quickly but they are far more dangerous because the fumes are easily ignited and explode rapidly when coming in contact with the air. Sulphur bars have the advantage that they are cheaper in price and not as dangerous. However, it is difficult to keep them burning. The author uses a pan, the sides of which come to a right angle at the bottom, which measures 150 cm. in length, fifty cm. in height and the sides thirteen cm. Sulphur and alcohol are placed in the pan in the proportion of one kilogram of sulphur to forty c. c. of alcohol. The sulphur is ignited and the cracks of the room are sealed. For a room of fifty cubic meters two and a half kilograms are sufficient. Spores are not killed by this method.

December 24, 1914.

The Combating of Venereal and Parasitic Skin Diseases in the Army, by Otto Sachs.—In military schools prophylactic treatment can be carried out by systematic lecturing concerning the importance and the sequelae of venereal infection. In armies, attention should be paid to the spread of venereal disease similar to that which is paid to other infections such as cholera, typhoid and dysentery. Hospitals for the treatment of these cases should be maintained. When armies encamp, the prostitutes of the town should be compelled to submit to a medical examination, preferably in the presence of one of the military surgeons. The use of whiskey, wine and beer should be forbidden. The army should have specialists in syphilis and venereal diseases beside the regular corps of surgeons, bacteriologists and internists. Cases of scabies, pediculosis, pityriasis rosea and versicolor which respond promptly to treatment should not be sent back from the front but should be treated at a reserve hospital. Cases of gonorrhea complicated with epididymitis, cystitis, prostatitis and arthritis should not be treated at the front. Fresh cases of syphilis and recurrences with severe symptoms should be transferred, but recurrences with mild symptoms should be treated in the field hospitals.

Prophylaxis and Therapy of Frostbites, by Ernst Pribram.—Prophylactically, a piece of linen is coated on its inner side with a thick solution of strong glue and while still warm is wound around the foot, especially the toes. The shoe is drawn on and the foot can remain for weeks in this bandage without any inconvenience, as the glue at body temperature adapts itself to any movement of the foot. Therapeutically, a bandage is used in the same way. If the foot should become frostbitten while in the bandage it should not be removed but it should be carefully massaged and allowed to thaw out slowly. The bandage should not be changed until a fresh one can be applied.

BULLETIN DE L'ACADÉMIE DE M. DECINE.

December 22, 1913.

Colloidal Gold in the Treatment of Typhoid Fever, by Letulle and Mage.—Colloidal gold in doses of one to two c. c. was injected intravenously in forty-two cases of typhoid or paratyphoid fever. The injections were followed by a pronounced reaction, with chilliness, sweating, and rise of temperature, followed rapidly by a marked general improvement, stupor passing off, quiet sleep, and a lasting fall in temperature. Frequently this fall was gradual, but attained three and even four degrees C., the temperature at times sinking below normal, without any interruption in the patient's general improvement. Entire days of apyrexia succeeded repeated injections of the remedy. In one case, the patient was in a quiet, apyretic state for over ten days out of a total of fourteen days of illness, though but three injections were given. The procedure recommended in further trials of the method is to administer colloidal gold at the outset of the case and additional doses when the rectal temperature rises again above 38.5° C., provided that twenty-four hours have already elapsed since the preceding dose. The rectal temperature is to be taken every three hours and a cold bath at 19° C. given when 39° C. is reached. This is continued until convalescence has set in. In cases of intermediate severity the authors gave three to seven doses of colloidal gold. The largest number given in a single case was twenty-six. All the patients recovered. The colloidal gold greatly reduced the number of cold baths required in the treatment of typhoid by the Brand method.

PRESSE MÉDICALE.

December 17, 1913.

Public Vaccination against Typhoid Fever, by G. Maurange.—A report of recent experiences in antityphoid vaccination among young male civilians in Paris is presented. Each one, before vaccination, was questioned as to previous typhoid fever, scarlatina, pleurisy, recurrent bronchitis, and chronic enteritis, all these being regarded as relative contraindications to the prophylactic treatment; in the aggregate, about fifteen per cent. were thus excluded. In each case vaccinated, three injections at weekly intervals were given. The vaccine was injected, after local disinfection with tincture of iodine, in the middle portion of the infrascapular fossa on the left side. The needles used were aseptically by means of chloroform and by boiling for ten minutes, while the syringes were washed between injections

with sterile water. The report comprises 13,800 injections administered in over 5,100 cases. The reactions witnessed were practically negligible, and usually were over in a few hours. The author's experiences lead him to look upon antityphoid vaccination of the civil population as an entirely feasible measure, calculated, if carried out with due thoroughness and an impeccable technic, to cause typhoid fever to disappear from the list of common diseases.

RIFORMA MEDICA.

January 2, 1914.

Importance of the Suprarenal Capsules in the Pathogenesis of Shock, by C. Romano.—The various theories of shock are reviewed, the nervous, autotoxic, vasomotor, and biochemical. Researches were undertaken to determine the part played by the adrenal bodies in the process. The experiments consisted in producing shock in dogs, and then studying the action of the suprarenal extract in this condition, and also the chemical and histological changes in the adrenals themselves in such animals. Controls were maintained in other animals. The conclusions arrived at by such study were twofold: The first is that in shock there are determined dynamic and functional changes in the suprarenals, resulting in the marked reduction in the power of the medulla of the gland to produce adrenaline. The second is that, while these alterations produce, in part, the classical picture of shock, on the other hand, it is established that the complex nervous syndrome is exclusively due to such alterations.

Pneumothoracic Pleurisy, by C. Fagioli.—This report is based on thirty recent cases of pleurisy occurring in fifty-eight patients, where therapeutic pneumothorax had been practised for pulmonary tuberculosis. There was seldom a prodromal period, but the onset was usually sudden, with malaise, headache, anorexia, and nausea. Subjective symptoms were rare and not constant, and when present they followed the range of fever. The duration was from two to four weeks. The quantity of fluid found was from 1.5 to three litres, with the characters of an exudate, a long coagulation period, high specific gravity, and high percentage of albumin. The sediment on centrifugation was scanty, and consisted of mononuclear leucocytes. In two cases tubercle bacilli was found by the Ziehl-Neelsen method, while by the antiiformin method of Sträubli-Schnitter typical acidfast bacilli were found in seventeen out of twenty cases. In three cases with a fibrinopurulent exudate, lavage with a one per cent. Lugol's solution gave good results. It would seem that the introduction of nitrogen produces a point of lowered resistance for the tubercle bacilli. In only one case was the patient's life or chance of recovery prejudiced by the intercurrent pleurisy.

REVISTA DE MEDICINA Y CIRUGIA PRACTICAS

January 2, 1914.

Treatment of Perforations of Abdominal Viscera, by J. Blanc y Fortacin.—The vital indication in these cases is immediate laparotomy for closing the perforation and removing the perforated organ. In every case of doubt, the surgeon should prefer an unnecessary operation to an untreated

perforation. Adhesion of the omentum, and a fibrinous coagulum are the only natural means of preventing sepsis, and these cannot be relied upon, as the defensive function of the peritoneum is practically annulled or overwhelmed by intense bacterial infection. Life saving surgical intervention is retarded by a constant preoccupation as to the condition of the patient and facilities for performing a laparotomy. No surgeon would hesitate to open the abdomen to arrest hemorrhage, and the indications are the same in puncture or perforation of abdominal organs. With a fire for sterilizing instruments, with a scalpel, a few hemostats, and a few sutures on needles, nothing more is required than the conviction that every minute's delay multiplies the chances of the patient's death. In bullet wounds the indication is absolute, namely, immediate laparotomy and minute examination of all the abdominal contents. In severe cases of shock in abdominal trauma, the writer thinks that the best routine is local anesthesia at the line of incision, with light ether anesthesia during the abdominal exploration. In urgent cases he has operated without any anesthetic whatever.

So Called Functional Alterations of the Stomach, by D. Hernando.—The writer doubts the existence of functional or nervous dyspepsia without organic lesions however slight these may be. In 2,000 cases, true nervous gastralgia was not seen once. The common conditions causing reflex gastric disturbances, are cholelithiasis, nephrolithiasis, appendicitis, and other affections of the right iliac fossa. Other organic conditions producing so called nervous dyspepsia are gastric ulcer in its early stages, enteroptosis with floating kidney, and hyperthyroidism.

BRITISH MEDICAL JOURNAL.

January 16, 1915.

Bactericidal Action of Collosols of Silver and Mercury, by C. R. Marshall and G. B. Killoh.—Crookes, who introduced these preparations, stated that he had not found any microbe which was not killed in six minutes by them. The tests upon which Crookes based his statement seem to be utterly fallacious; the authors show that concentrated colloidal solutions actually remained in contact with microorganisms for long periods of time. Marshall and Killoh tested the bactericidal activity of these two preparations by a method of accurately timed exposure of the organisms to varying strengths. Neither of the solutions exerted any noteworthy bactericidal action, even in nearly or full strength. That the slight bactericidal action of the mercury collosol might have been due to conversion of mercury into an ionized form, was proved to be a correct hypothesis by the fact that when conditions were present for the conversion of a greater proportion of mercury than usually occurred, the bactericidal action was increased. Silver collosol was even less bactericidal than mercury. In spite of the exceedingly insignificant bactericidal action of these two preparations both of them are actively antiseptic, the silver being the more active.

Collosol argentum and Its Ophthalmic Uses, by A. Legge Roe.—The general impression conveyed by the author is that this is the most valuable ophthalmic antiseptic so far introduced. In his

hands practically every form of ocular infection has yielded to its administration, in full strength, by dropping into the eye. However, in treatment of the severer cases the author has used simultaneously the commoner germicidal solutions.

Effect of Daylight and Drying on Human and Bovine Tubercle Bacilli, by Leonard Findlay and W. Blair M. Martin.—Human pulmonary tuberculosis is very rarely due to the bovine type of organism; aerial infection rarely occurs among the susceptible lower animals. On the other hand, that the bovine type of organism is virulent and fully capable of infecting either the human or animal host is proved beyond a doubt. Its presence in glandular tuberculosis and in bone lesions shows that it is capable of infecting the human being even after passing the most effective barriers of the body. Active, virulent strains of each type of organism were cultivated and were then exposed under fairly constant conditions to drying at ordinary room temperature in diffuse daylight, without the direct rays of the sun. Different lengths of exposure were secured; the results were in close agreement. Desiccation alone, in the absence of daylight, at room temperature for even as much as a week had little effect on the activity or virulence of organisms of either type. The destructive action of diffuse daylight was found to be marked; the human strain became entirely avirulent after a week's exposure. The bovine strain was even more readily affected by diffuse daylight, and it is suggested that this fact may account for the difference in the frequency of aerial infection.

LANCET.

January 16, 1915.

Results of Clinical Investigations Based on the Methods of Abderhalden, by J. O. Gavronsky.—The author visited Abderhalden twice for the purpose of perfecting his technic; reporting 121 cases embodying a considerable variety of conditions, cancer and pregnancy chiefly, he states that we cannot demonstrate specific protective ferments. The serum of pregnant patients does contain proteolytic and peptolytic ferments, but these are able to digest any other kind of protein or peptone as well as that from the placenta. When proteolytic ferments are found in the serum of patients with cancer or any other disease, these ferments are equally nonspecific and are capable of digesting any form of coagulated protein. In one respect only may the test prove of value, and that is in a negative manner, for it is unusual to find any proteolytic ferment in the serum of a normal individual. More than sixty different substrates were prepared and used in this research, and it was observed that apparently the physical form had more influence on the degree of the reaction than did any other factor. Substrate, such as the placenta, which is decidedly spongy, always gives better reactions than a substrate which is compact, as brain tissue. Warning is uttered against the use of the several prepared substrates which are now on the market as diagnostic agents. The paradoxical statement is made that the more controls one makes of the readings in the Abderhalden test the less satisfactory will be the results, the fewer the controls the better the results.

Pellagra in Antigua, by W. M. McDonald.—The occurrence of the disease in this country pre-

sents certain peculiarities which bear upon etiology. In Antigua maize is largely used among the blacks, among whom alone there is pellagra. But it is also to be mentioned that these people live under very bad hygienic conditions, both general and dietary. Against Sambon's theory of transmission by *Simulium* stands the fact that no *Simulium* has so far been found in Antigua. On the other hand the stable fly, which has been incriminated by American investigators, is very prevalent, and the habits of the blacks bring them into much greater exposure to the bite of these flies than is the case with the whites. Taking all of the facts together, it seems that the Antigua pellagra lends about equal weight of evidence to the two prevailing theories of etiology.

The Effect of Calcium Chloride on Hemolysis Occurring *in Vivo*, by W. W. C. Topley and S. G. Platts.—The carefully conducted experiments of the authors confirmed the general belief that calcium chloride is capable of delaying or completely inhibiting hemolysis *in vitro*, and this without any action on the red blood cells or the hemolytic antibody, and without preventing the union of these two. From this it was reasoned by the authors that calcium chloride would interfere less with hemolysis *in vivo* than *in vitro*. Pains-taking experiments on rabbits showed that calcium chloride in enormous amounts had no action whatever on inhibiting hemolysis *in vivo*.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

December 1, 1914.

Asiatic Cholera, by J. F. McMillan.—A remedy especially recommended is pills of colocynth and hyoscyamus, B. P. A draught made up as follows is also advised: Aromatic spirits of ammonia and tincture of hyoscyamus, of each fifteen minims; compound spirit of ether, ten minims, and spirit of nitrous ether, thirty minims, the whole to be diluted to one ounce with water, as required. Rest in bed, with the use of hot water bottles, blankets, and fomentations when the reaction appears, are to be ordered. Thirst is best alleviated by giving ice to be sucked. It was generally found that when the patient desired chicken broth, milk, lime water, or jelly, these articles of food, if given, were well retained in the stomach; where no desire was evinced for such food, nutriment was administered by means of a teaspoon rather than feeding cup. In certain cases mutton broth, unskimmed, was found to be easily retained. Application of eau de cologne to the forehead with a handkerchief generally proved a grateful measure. McMillan considers alcohol an important adjunct in the treatment, especially where the patient has been already accustomed to its use. Stimulation of the kidneys with fomentations, blisters, or cantharides is advised when the patient, in the algid stage, shows signs of returning animation and recovery from the preexisting state of collapse.

BOSTON MEDICAL AND SURGICAL JOURNAL.

January 1, 1915.

Compensatory Exercises as an Aid in the Treatment of Locomotor Ataxia, by H. M. Swift.—He takes into account only the four most important abnormalities in walking to illustrate the methods for correcting them. These are hyper-

extension at the knees, overaction of the swinging leg with exaggerated dorsal flexion of the foot, lack of plantar flexion of the foot of the supporting leg to throw the body weight forward, and the faulty position of the hips with a corresponding faulty position of the trunk. With regard to the hyperextension at the knees he considers it to a certain extent conservative and says it may be inadvisable to try to correct it during the earlier stages of treatment. Later the patient may practise slowly the movement of sinking and rising at the knees, always watching himself carefully and exerting himself strenuously to avoid all jerks. Standing may also be practised with the knees in a partially flexed position. To correct the overaction of the swinging leg with dorsal flexion of the foot, the patient practises walking with the leg sharply flexed at the knee and with the foot pointing downward in exaggerated plantar flexion, thus touching the floor first with the toe and then coming down gradually on the whole foot. This is to be done slowly, aiming at perfect steadiness and avoiding jerkiness. At the beginning of the movement the foot often leaves the floor with a little twist, and this is to be combated. Usually the foot is best held pointing directly forward. The third defect is to be overcome by having the patient practise throwing the body weight forward by means of careful attention to the movements of the supporting foot. These first three defects are corrected by training the eyes to watch the various movements and to correct aberrations when they occur, but for the fourth this does not suffice, the equilibrium sense has to be trained. The attainment of the correct position of the hips may be aided at first by the physician's pushing in against the trochanters of the patient as he walks. The tendency to bend forward is corrected by keeping the buttocks forward, and this may be aided by slight pushes or taps. The development of the equilibrium sense may be aided by having the patient notice that his tendency to topple over can be overcome in a measure by quickly pushing out his pelvis along the line in which he feels himself falling. These exercises may be practised with the aid of the support of another person, then with sticks, then without sticks, and finally with closed eyes, the difficulty of the task being increased as fast as the progress of the case admits. Other exercises are given, and it is urged that the defects in any be carefully analyzed and a certain amount of ingenuity employed in adapting the exercises to suit the individual. In far advanced cases the patient is unable to stand, let alone walk, and then he must be trained to stand. The exercises are along similar lines, the patient being supported. They should be practised for short periods of time with frequent intervals of rest, and the treatment must be continued for a long time, from six months to a year. It is not suitable for all cases, the more common contraindications being optic atrophy, a heart lesion, poor general physical condition, and frequent pains or crises.

Diabetes and Surgery, by Edward H. Risley.—The writer is of opinion that most of the major operations may be performed successfully on diabetics, but lays down the following rules: 1. A thorough examination of the urine must be made in every case, especially for acetone and diacetic acid. 2. The total amount of ammonia must always be

estimated. No operation except of the extremest urgency should be performed if there is one gram of ammonia excreted in twenty-four hours, until this has been reduced to the normal amount. 3. An operation should be postponed should there be acetone or diacetic acid, even if the amount of ammonia is normal. 4. Much albumin in the urine is a contraindication to operation, and even in small amounts is of bad prognostic import.

January 28, 1915.

Lymphatic Leucemia in Acute Infection, after Removal of the Spleen, by James Marsh Jackson and William David Smith.—A young man a few weeks after removal of the spleen in 1909, showed an essentially normal blood picture. In 1913, he had what seemed clinically an acute tonsillar infection; which was followed quickly by marked enlargement of the glands of the neck and a moderate general enlargement involving the axillary, inguinal, and epitrochlear glands. This was marked by a blood picture so typical of lymphatic leucemia that no other diagnosis seemed possible. After a week of sore throat, general malaise, and moderate elevation of temperature, the symptoms abated and a normal convalescence as from an acute infection ensued. Blood examinations from time to time showed a gradual diminution in the white count, and a change in the blood picture from that of a typical lymphatic leucemia on June 13, 1913, to an approximately normal one on August 23, 1913, and a normal one on April 15, 1914.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

January 27, 1915.

A New Type of Ankle Fracture, by F. J. Cotton.—This paper was abstracted in our issue for July 4th, page 55.

Institutional Mortality of the Newborn: A Report on Ten Thousand Consecutive Births at the Sloane Hospital for Women, New York, by L. E. Holt and E. C. Babbitt.—The deaths during the first fourteen days were three per cent. of the living births; half this number were premature births. Forty-eight per cent. of all deaths and sixty-six per cent. of deaths after premature birth occurred on the first day. Of the total deaths, congenital weakness and atelectasis together made up fifty-eight per cent., while but twenty per cent. were due to conditions intimately connected with labor. Syphilis caused four per cent. of the mortality, and malformations and congenital diseases other than syphilis, an equal number of deaths; while the only important disease after birth was pneumonia. Stillbirths must be reckoned as one of the problems in infant mortality, being one and a half time as numerous as deaths from all causes during the first two weeks. Except for the preponderance of syphilis, the causes of stillbirth in no way differ from those producing death in the first days of life. As to what degree preventive measures might influence the mortality of the first two weeks of life, two things stand out prominently: The great number of deaths from congenital weakness can be reduced only by care of the mother during pregnancy; the number of stillbirths and deaths from causes connected with parturition can be largely reduced by good obstetrics.

Sarcoma of the Tongue: A Study of the Published Cases, with Reports of Two New Cases, by W. T. Coughlin.—The etiology, pathology, symptoms, and diagnosis are described in detail, and it is stated that the direct cause of death may be exhaustion, pneumonia, sepsis, or hemorrhage. No death occurring during operation, or immediately afterward, has been reported, but a death attributed to sepsis, pneumonia, or hemorrhage, occurring within eight days, may be laid to the operation. Local removal only has been primarily done in twenty-five out of forty-six cases. The more radical operative treatment comprises removal of one half the tongue; total removal of tongue and some adjacent part or parts. One would expect the prognosis to be better after a primary operation than after one for recurrence, but it is found that this is not necessarily so. Recurrence has been noted up to three and a half years after operation, and no recurrence appears to have been delayed longer than this. In the author's first case a V shaped portion of the tongue bearing the tumor was removed, and the patient was lost sight of shortly after the operation. In his second case the cheek was split as far as the masseter on the affected side and a modification of Whitehead's procedure for removal of half the tongue was employed. The use of Coley's fluid was begun in the first week and is still continued, and x ray treatment, with massive doses, is given once a month. The patient has recently gained eleven pounds in weight, and reports that he feels perfectly well.

Edema from Large Doses of Sodium Bicarbonate, by L. A. Levison.—Sodium bicarbonate in large doses may cause an increase in body weight, due to retention of chlorides with resultant water retention, which may go on to the appearance of edema. The increase of body weight or edema is more likely to appear during the administration of the bicarbonate to cachectic diabetics with acidosis, but it can be produced in an experimental way in normal individuals.

Treatment of Hemorrhage by Injection of Blood, by A. H. Curtis.—Repeated subcutaneous injection of whole blood immediately on withdrawal from a healthy donor is a simple procedure of value. The use of serum from the lower animals is open to certain objections, and it is believed that whole human blood possesses the beneficial qualities common to serum or other derivatives, while it does not contain elements likely to be harmful; an opinion upheld by clinical results. The methods commonly employed in the preparation of human blood consist in allowing it to stand until the serum separates, or in centrifuging in case of emergency; after which the serum is injected subcutaneously or intravenously. A more simple and regularly successful technic, and one which reduces danger of infection to a minimum, consists in injecting whole blood into the patient immediately after its withdrawal. A twenty c. c., or larger, ground glass syringe is sterilized, preferably by the dry method, and the inner surface lubricated with sterile petrolatum. Blood is withdrawn in the usual manner from a cubital vein of the donor; the needle is then inserted beneath the subcutaneous tissues of the patient's back, and the blood injected. In many cases

of uterine hemorrhage this therapy obviates the need of operative interference or expensive and time consuming x ray treatment. For persistent hemorrhage of moderate severity (for example, hemorrhage of the newborn) blood injection rivals transfusion in results achieved, and is the method of choice because it requires little technical skill. Hemotherapy for chronic anemias, wasting diseases, and infections with grave outlook deserve serious consideration, as it is not unlikely that the stimulating effect of repeated injections of blood offers more hope in this field than does the more difficult procedure of one, or even two transfusions of large quantities of blood.

MEDICAL RECORD.

January, 1914.

Prophylactic and Therapeutic Immunization against Tuberculosis; Its Possibilities and Limitations, by S. H. von Ruck.—In prophylaxis immunization finds its most successful application. Attempts to immunize against tuberculosis by means of living bacilli, either nonvirulent or virulent, though in minute numbers, is too dangerous ever to come into vogue. Karl von Ruck introduced, for prophylactic active immunization, a vaccine which contains all the active constituents of the tubercle bacillus, chemically altered, in solution, and therefore in a form immediately available for absorption. By means of this vaccine, which also represents a complete antigen, though balanced quantitatively, it became possible to produce perfect immunity against the pathogenic action of the bacillus and to immunize normal persons against the disease. Hitherto, efforts have consisted in ascertaining and, as far as possible, rendering innocuous the sources of infection, in teaching tuberculous persons how to avoid infecting others, and in raising the general resistance against infection. Unfortunately, all this is entirely inadequate to deal with the problem, and the more so since it is quite impossible to eliminate all sources of infection. The logical conclusion is that only specific immunization can be expected to produce effective results, to lower morbidity and, eventually, the mortality of tuberculosis. In the genesis of phthisis something more is required than the tubercle bacillus; not every tubercle formation leads to consumption; predisposition to tuberculosis must not be confounded with predisposition to phthisis. Tubercle formation almost invariably follows infection with the bacillus if the latter succeeds in breaking through the first lines of defense, but in the resistant organism the formation does not progress and does not lead to phthisis, as the predisposition to it is absent. Tuberculosis in its uncomplicated form has a tendency to localization and to healing, but when the lesion undergoes caseation and softening—i. e. when phthisis supervenes—there results a tendency to extension. One may never hope to cure a well established case of phthisis solely by pericardial injections of a tuberculin or an antituberculosis vaccine; the possibilities of the latter will always be limited by the sum of the clinical assets and liabilities of the individual case. A specific remedy is possible only for uncomplicated tuberculosis; in the ordinary run of cases of phthisis as they are met with in practice, specific remedies

must be looked upon as useful, and even indispensable, aids, but not the end of treatment.

Twilight Sleep in the Home, by K. F. Junor.—This method requires a more continuous attendance of the accoucheur, and this is a favorable circumstance, necessitating, as it does, more care and supervision. It is the author's conviction that the introduction of such amelioration of the pains of childbirth, and removal of the dread of it, will go far to restore the birth rate and, in addition, modify prenatal influences now injurious to offspring. There is good evidence for the belief that the addition of sparteine sulphate to the drugs employed, which is advocated in the paper, is a distinct advance, as, in all probability, it diminishes narcosis amnesia and unconsciousness and permits analgesia to the abolition of any suffering; securing on the whole such a complete reduction of shock that the patient emerges without exhaustion or impaired vitality.

JOURNAL OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

November, 1914.

Inflammatory Tonsillar Disease and Its Cure, by C. C. Cott.—Normal tonsils are able to absorb and kill bacteria, but if they are diseased, they are a positive source of danger. The tonsils are easily infected because of so many deep crypts with poor drainage, some, in fact, draining upward into the supratonsillar fossa. Infection easily gains entrance into the system, causes acute articular rheumatism and various heart lesions, etc. All inflammatory tonsillar diseases are caused by infection through the crypts, the bacteria multiply, the epithelium breaks down, the germs advance, and there is an acute follicular attack. A ten per cent. solution of silver nitrate applied to each crypt as deeply as possible soon cures the attack, if accompanied with stern eliminative measures, or the symptoms, at least, become more mild. If the spontaneous rupture of a supratonsillar abscess takes place, it is usually through the anterior pillar. If a physician is called before rupture, the abscess should be opened through the anterior pillar half way between the last molar tooth and the root of the uvula, or behind the pillar above the tonsil. Chronic affections of the tonsils require surgical interference to establish a cure. If a tonsil is not perfectly enucleated, trouble may still ensue because the crypts, which are always diseased, run as deeply as the outer surface of the tonsil in some cases, and if any tissue is left in the tonsillar fossa, it is very likely diseased tissue.

SURGERY, GYNECOLOGY AND OBSTETRICS

November, 1914.

Gastric and Duodenal Ulcer, by A. von Eiselsberg.—On the basis of his observations, he lays down the following rules for the choice of method of operation: For acute perforation the best method is immediate laparotomy with irrigation of the peritoneal cavity and closure of the orifice of the perforation. Whether a gastroenterostomy should be done afterward depends upon the situation of the ulcer and the general condition of the patient. If the patient is so weak that a gastroenterostomy is out of the question, if he can eat nothing on ac-

count of the peritonitis being already far advanced, then jejunostomy is the simplest operation, as it makes it possible to feed the patient immediately after the operation. When the hemorrhage is severe, expectant treatment is best, for it has repeatedly occurred at the operation that the bleeding point could not be found. One can stop a good deal of hemorrhage with rest in bed, ice bags to stomach, injections of gelatin, serum of horses, the administration of calcium lactate. In hopeless cases a trial can be made of strong silver nitrate, one in 100 solution, for irrigation. In typical stenosis of the pylorus, especially in the case of a long standing ulcer where no new symptoms have occurred, gastroenterostomy is the operation to be selected. For ulcers situated at a distance from the pylorus simple gastroenterostomy is not so feasible as in cases of ulcer of the pylorus itself. In cases of ulcer situated at a distance from the pylorus as well as in cases where there is a high hydrochloric acid value, transverse resection seems to be the operation of choice. In his clinic gastroenterostomy is done whenever possible after the method of Hacker, posterior retrocolic with a short loop, or better, without any length of bowel between the stomach and jejunum. The transverse mesocolon is found and an aperture is made in a part comparatively free from bloodvessels. Through this opening the stomach wall is pulled forward and then secured with a Doyen's clamp at a place which is as near as possible to the greater curvature. The small intestine at the junction of the duodenum and jejunum is brought to this spot and sutured. The suturing is done after the method of Wölfler; first, inner seromuscular suture; second, inner mucous suture; third, outer mucous suture; fourth, outer seromuscular, and then a few Lembert sutures added. It is of special importance that the slit in the mesocolon should be properly sutured.

whose surroundings and whose work are of an unsanitary nature. Vincent's angina frequently follows measles, scarlet fever, whooping cough, and diphtheria. Other affections that may precede and help to produce Vincent's angina are dental caries or abundant tartar on the teeth, alveolar abscess, mercurial stomatitis lymphoid tendencies, enlarged and necrotic tonsils, syphilis, trauma after tonsillectomy, inflamed gums, irritative lesions in the mouth, eruption of a wisdom tooth and of the second teeth in children. Oral uncleanness and bad condition of the teeth are important causative factors. The organisms are not apt to produce disease unless the teeth, mucous membrane, or tonsils are in an unhealthy condition, or unless the general health is bad. The greatest number of cases appear to be among young adult males and children out of their teens. The usual point of attack is the tonsil, but it may involve the uvula, soft palate, tongue, the mucous surfaces of the gums and cheek and lip, the sublingual glands, the larynx and trachea, the last especially in children. The ulcer is deep and long and does not appear to spread from the edges as in diphtheria. The membrane is light and friable, whereas, in diphtheria, it is thick and tough. These signs and the smear should render the diagnosis accurate. The prognosis is most unfavorable when Vincent's angina occurs as secondary to some other infection. Primary cases are usually not serious. Treatment of the tonsillar form is to promote drainage from the affected crypt, to keep the ulcer clean and apply a twelve per cent. solution of silver nitrate. Trichloroacetic acid in full strength has been employed with great success. Iodine is preferable only in cases in which the ulceration involves a large surface. Marvelous cures are reported with salvarsan. The treatment should include prophylaxis and attention to the hygiene of the mouth.

ANNALS OF OTOLGY, RHINOLOGY, AND LARYNGOLOGY *June, 1914.*

Anaphylactic Reactions, by J. L. Goodale.—The author mentions the statement that asthmatics are liable to anaphylactic shock after the injection of horse serum. In sensitive cases, another variety of serum should be employed. If shock has occurred, the hypodermic administration of atropine has been suggested. Ether is also recommended for the purpose of diminishing the spasm of the arterioles. In cases of diphtheria, where it is absolutely necessary to control the disease, one may be justified in administering a minute dose of antitoxin for the purpose of exhausting the zymogen in the system, and then following this, after the anaphylactic symptoms have subsided, with a full dose of antitoxin. It is suggested that a preliminary skin test with horse serum be made in all patients who have previously received an injection of antitoxin derived from horses, whether tetanus, diphtheria or plague serum. In all patients who are about to receive antitoxin for the first time, inquiry should be made as to whether they have ever been disturbed by asthmatic symptoms when in the neighborhood of horses; if so, they should be tested.

Vincent's Angina, by J. J. Richardson.—By far the greatest number of cases are among patients

Proceedings of Societies.

CLINICAL CONFERENCES OF THE NEUROLOGICAL INSTITUTE, NEW YORK.

Regular Meeting, November 5, 1914.

Dr. EDWIN G. ZABRISKIE in the Chair.

An Unusual Case of Disseminated Sclerosis.—Dr. JOSEPH COLLINS, presenting a patient, said that disseminated sclerosis displayed itself in many guises. It was in reality a mysterious disease. Nothing was known of its cause, its pathogenesis was enigmatical and many of the occurrences in the course of the disease transcended their understanding, e. g., the abrupt cessation of symptoms. The patient presented had symptoms of the disease commonly called subacute combined sclerosis of the spinal cord, but careful consideration of all the symptoms and of his entire history justified the statement that the disease from which he suffered was in reality disseminated sclerosis. The mother had died of apoplexy. The paternal side of the family history was entirely negative. On the maternal side many of the members died of apoplexy, after the forty-fifth year. The patient was always a strong, healthy man, until the onset of the present

illness. He came to this country in 1894 and since then had had to struggle for existence, but he had achieved success. He dated the onset of his present illness back to 1911, but, on close inquiry, admitted that he had occasionally pain in the shoulders and between the shoulder blades since 1905. The initial symptom was noted about three years ago; on awakening one morning he felt a slight numbness in the left arm and hand, more marked in the hand. This numbness had remained constant since, varying in intensity, becoming more marked in damp weather and in very hot weather. No other symptoms appeared until April, 1913. During this month there was a great deal of damp, rainy weather. One morning, on getting up, the knee, ankle and phalangeal joints were stiff, the left more than the right. The lower extremities felt cold and numb from the knees down. These symptoms are also constant, but varied greatly in intensity with the weather. Since then he had walked "stiff legged." In December, 1913, January and February 1, 1914, he had no stiffness and numbness and thought he had recovered. He walked up the stairs and into his home just as well as before the "stiffness" began. In February and March he worked very hard, worried a great deal, and frequently became chilled, working in a cold office. The numbness and stiffness suddenly returned in March. In April, 1913, when these symptoms appeared, he noticed that he was unable to start urination for about fifteen seconds. Then he would void normally. This symptom had not varied since then. The patient was always somewhat constipated. Since April, 1913, this had become much more marked. The first part of the stool was always in scybala.

In April, 1913, he had had transient periods of diplopia lasting for a few minutes and recurring when tired, and in damp weather. As soon as he rested, it disappeared. The diplopia occurred only during April and May. In February, 1914, he suddenly noticed a slight awkwardness in using the hands for complicated movements, such as writing and buttoning clothes. This symptom also varied in degree. In March, 1914, along with the return of the numbness and stiffness, he noticed that he became tired easily and walked unsteadily, especially when fatigued. He could walk only about two blocks, when he had to stop, because of fatigue. After resting a minute or two, he could walk another block or two. Since the onset there had been frequent periods of almost complete remission of all the symptoms. In October the last remission occurred. It lasted for two weeks, during which time he could walk perfectly well, could use the hands, and felt very little stiffness or weakness. During these periods he felt very bright and active mentally. The mental state varied with the physical condition. There had been no incontinence, paresthesia, except the numbness, and no pain except occasionally in the joints in damp weather; no fibrillary twitching as to the muscular system; there had been no atrophy nor increased myotonic irritability; no fibrillary twitching; no weakness of upper extremities. Flexion of thighs was distinctly weak; extension quite weak; adduction and abduction, no definite weakness nor in extension of leg; flexion of leg was distinctly impaired, plantar flexion of ankle

was strong, dorsal flexion of ankle was distinctly weak, and there was distinct weakness of the perineal muscles. No weakness of lumbar muscles was noted. There was distinct spasticity of the lower extremities to passive movements, slight awkwardness and slowness in use of the hands, and marked incoordination of lower extremities of the cerebellar type. The patient walked stiff legged and with a broad base. He staggered to either side and on turning would fall, if not supported. There was no disturbance of superficial or deep sensibility.

As to the cranial nerves, the first pair was normal. 2. Vision normal. 3, 4, 6. Reaction of pupils normal to light and in accommodation. The left disc was rather pale, but the bloodvessels of the discs were normal. High hypermetropia was present. No restriction of visual fields; no weakness of extraocular muscles. 5. No weakness of muscles of mastication. Sensation of face was normal. Corneal reflex was present. 7. No facial asymmetry. 8. Hearing normal. No nystagmus. Ninth, eleventh, and twelfth pairs were negative.

Biceps, triceps, and tibial reflexes were hyperactive and equal; knee jerks and ankle jerks hyperactive. When the patient was cold there was ankle and patellar clonus present on both sides, when warm ankle clonus was present on left. The abdominal, epigastric and cremasteric reflexes were absent. Babinski and Oppenheim were present on both sides, and there was slight but distinct Hoffmann on both sides.

The laboratory examinations of the blood, the cerebrospinal fluid, and the excretions showed them to be entirely normal.

The features of the case that suggested the diagnosis of disseminated sclerosis, were, first, the age of the patient (thirty-seven years), the occurrence of diplopia, the remarkable remissions, the absence of the abdominal and epigastric reflexes, all associated with a state of spasticity in the lower extremities and of occasional clumsiness or awkwardness in the upper extremities.

Tumor of Pontocerebellar Angle.—DR. HENRY K. MARKS presented a case, and said of the patient, who was a man aged fifty-nine years, that his antecedents were negative. Since boyhood he had suffered from frontal headaches. With advancing years these headaches had become less frequent and intense; for the past five years they had been unusual and slight. His habits were good. Venereal disease denied. Married twenty-four years, his wife had one miscarriage, no offspring. The symptoms of his present illness fell in the following chronological order: 1. Buzzing in the left ear began fourteen years ago. Impacted cerumen was diagnosed and oil instilled, but without relief. The buzzing became more persistent and intense. 2. Soon after, hardness of hearing began to develop in the left ear, leading to deafness within about two months. 3. He had no further difficulty for about two years. Then twelve years ago, while driving a truck, he experienced a sudden sensation of weakness and heaviness in the legs from the thighs to the knees. 4. Some two weeks later, he noticed he tended to swerve to the left when walking. This disturbance increased gradually, reached its height

in a few months, persisted in full force for a year or so—people in the streets thought him intoxicated—then gradually became less marked. At present he still showed occasionally a tendency to go to the left. 5. Eight or nine years ago, facial neuralgia appeared, affecting the third branch of the left quintus. Almost all the teeth of the lower jaw were removed, but without relief. The pain persisted for several months and disappeared gradually. 6. About seven years ago, he fainted. He recalled no attendant vertigo. 7. Except for the coming and going of the foregoing symptoms, he felt perfectly well up to five or six weeks ago. Then his lips on the left side began to feel a little thick. To this was added, a couple of days later, the sensation of a foreign body beneath his upper left eyelid. About three weeks ago, on closing his eyes as he thought, he became suddenly aware that he was still seeing the light. He discovered then that he was unable to shut his left eye and that his face was getting crooked, pulled to the right.

There had been no other symptoms; no change in the type of headaches above recorded; no vertigo; no dimness of vision; no diplopia; no nausea or vomiting; no pains; no sphincter disturbances. Physical examination revealed the following: His pupils were not quite circular, the right being slightly greater than the left but both reacted promptly to light and accommodation. On lateral deviation to the left, there developed coarse, irregular, arrhythmic, nystagmoid jerks, on deviation to the right finer arrhythmic jerks. There was slight weakness of the left external rectus. On looking upward, the right eye tended to deviate inward and there was slight arrhythmic instability of the eyeball. There was myopic astigmatism. The fundi were normal, except for myopic changes beneath the discs. The fields were likewise normal. Corneal sensibility showed no impairment. There was some tenderness of the fifth nerve at its exit, greater on the left than the right. There was a slight relative hypaesthesia over the second and third branches and possibly slight relative hypalgnesia over the third branch on the left. The motor branch of the fifth nerve was intact. There was left facial palsy of the peripheral type. The mouth was drawn to the right and the patient was unable voluntarily to close the left eye. The palatal and pharyngeal reflexes were active and equal. There was no speech disturbance aside from indistinctness due to the facial palsy. The tongue was protruded straight and without tremor. The patient's general nutrition was fair, and muscle strength was good. His arm reflexes were active and equal. Double Hoffmann existed, the left the more pronounced. The epigastric reflexes were active and equal, the abdominals sluggish and easily exhausted. The knee jerks were brisk, the left greater than the right. The ankle jerks were active and about equal. The plantars were flexor in type; Babinski and Oppenheim were absent. Superficial sensibility showed no impairment nor did deep sensation. The appreciation of postural and passive movement, relative weights, vibration, stereognosis was without defect.

There was slight swaying, chiefly lateral, of his outstretched hands; on sustained effort the left

arm tended to sway more than the right. Both outstretched hands assumed a claw attitude, flexion at the wrists, hyperextension at the metacarpophalangeal joints, particularly the left hand. No dynamic tremor existed on the right. On the left there was occasional fumbling toward the close of the finger nose test, with slight lateral oscillations after the nose has been attained, but no pronounced ataxia or intention tremor. Dysmetria was absent, though from the patient's description this probably existed several weeks ago. Alternating movements of pronation and supination were well performed with the right arm; with the left arm after a few movements the succession tended to become awkward and slower and might be arrested completely. Dysdiadochocinesis therefore existed. There is no asynergia. In the legs there was disturbance of coordination on the right. On the left the knee was, as a rule, well attained, but at times after it had been reached there might be lateral oscillations, so marked that the heel was displaced. Asynergia and dysmetria were absent. The patient's station was, as a rule, steady with eyes open or closed. Occasionally with feet together, he tended to fall to the left, but in no other direction. He walked on a broad base and at present showed a more constant tendency to deviate to the right than left.

There could be but little doubt that they were dealing with a new growth in the left cerebellopontine angle. The symptoms had evolved with almost textbook precision. Differential diagnosis seemed almost superfluous. Nevertheless, intrapontine new growth and tumor of the left cerebellar lobe must be considered. The symptoms of intrapontine tumor were, in the vast majority of cases, bilateral. In this patient the significant symptoms were strictly unilateral. It may be argued that the absence of choked disc favored an intrapontine site. The absence of choked disc, however, was by no means unknown in angular tumors, even after their existence for many years. Against cerebellar tumor were the mode of onset, the initial implication of the eighth nerve, the progress of the disease, the successive involvement of the various cranial nerves, the inconstancy of the cerebellar symptoms, their coming and going, the absence of general symptoms usually associated with cerebellar neoplasms.

The chief reason for presenting this case, was to demonstrate the rarest sign of the so called Babinski cerebellar syndrome. This syndrome consisted of four signs—dysmetria, asynergia, adiadochocinesis, and cerebellar catalepsy. It was to cerebellar catalepsy that he referred. It was described by Babinski in the late '90s, yet not more than three or four cases had been reported. Oppenheim, for example, stated that he had never seen a case. The sign consisted essentially of a pathologically heightened static equilibrium. It might occur in individuals with ataxia and asynergia so marked that the patient might be unable to advance more than a single step. Under these conditions the contrast between dynamic impotence and static immobility was most striking.

The existence of this cerebellar catalepsy was then demonstrated. The patient lay on his back,

his thighs flexed on his pelvis, his legs apart. The limbs assumed an immobility almost waxlike in its perfection. Occasionally a slight vertical oscillation of one leg or the other occurred, but equilibrium was quickly regained. This fixity might be quite as perfect even at the end of the eight or ten minutes, a phenomenon, scarcely possible even in most vigorous subject in the same position. At the end of the test absolutely no sensation of fatigue was induced. This high level of static equilibrium, in contrast to his dynamic cerebellar disturbances, was quite striking.

A Case for Diagnosis.—Dr. FOSTER KENNEDY presented from the second division, a somewhat obscure case for diagnosis. William R., aged fifty-eight years, truckman by occupation, was admitted on October 26, 1914, complaining of headache, restlessness, double vision, and vomiting. His previous history had been good. Venereal disease was denied. He had eight children; wife had had no miscarriages. The onset of his present condition occurred suddenly seven and a half weeks before, with pain in the lumbar region, which extended around the body like a belt and persisted for three days. With its departure there came a shooting and aching pain in the right thigh, which had persisted. He had no headache and no vomiting at this time. Two weeks before admission he began to see double and his left eyelid drooped. It was found then that there had developed an incomplete paralysis of the left third nerve. Four days later, a paralysis of the right side of the face occurred of a peripheral type. He then had almost constant headache, daily vomiting, progressive weakness, and general malaise.

On examination, he appeared to be about the age stated, was talkative, and quite euphoric. His heart, lungs, and abdomen were apparently normal. A considerable degree of general arteriosclerosis was present. His systolic blood pressure was 140. His optic discs were normal; the left pupil was smaller than the right and its reaction was diminished both to light and on convergence. Almost complete ptosis of the left eyelid existed. The extrinsic muscles supplied by the left third nerve were almost completely paralyzed. The right pupil was perhaps a little sluggish in its reaction, but not markedly so. The movements of the right eyeball were normal; no nystagmus. There was almost complete facial paralysis of peripheral type on the right side. The fifth nerve was not affected; hearing good; palate and articulation good. There was a distinct weakness in the extensor muscles of the left forearm and in the flexor muscles of the right thigh. There was a generalized feebleness, but no other localized motor disability. It was not possible to discover any definite sensory disturbance. At times it was thought that a relative hypaesthesia of glove and stocking type was present, but the observation could not always be confirmed. All deep reflexes were absent. The plantar reflexes were of flexor type. The abdominal reflexes were sluggish and equal. Spinal puncture, performed shortly after the occurrence of his cranial nerve palsy, showed a lymphocytosis of 3,000 per cm. The cells were large mononuclears; the Wassermann test was found to be negative in both the

blood serum and cerebrospinal fluid. His temperature was consistently normal. There was no rigidity of the neck. On November 3d, his pupils were unequal and irregular in outline, fixed to light, and apparently fairly active on convergence. There was considerable limitation in power in the right external rectus with some limitation in the upward movement of the right eye. The movements subserved by the left third nerve had improved. The plantar reflexes were, right consistently flexor, left always sluggish and rather indefinite. Examination by Dr. Culbert showed that there existed a tumor on the left upper jaw, possibly an alveolar abscess. Blood examination disclosed hemoglobin 100 per cent., red cells 5,068,000; white cells 9,200. Cerebrospinal fluid analysis, dated October 30th, showed negative Wassermann reaction, a much increased globulin content, 1,820 cells; the fluid reduced Fehling solution, which on a previous examination it had failed to do. A heavy trace of albumin was present in the urine, but no casts.

Examinations for tubercle bacilli in the cerebrospinal fluid proved negative. No sign of lead intoxication was present in the blood, but a considerable autointoxication might easily occur, owing to the extremely septic condition of his mouth. There had never been any sphincter trouble. His gait was staggering and suggestive of general weakness and illness rather than any specific effect of his motor apparatus. His sinuses were clean.

In face of the completely negative syphilitic history and laboratory findings, it was difficult to ascribe this individual's condition to a diffuse syphilitic meningomyelitis—a hypothesis which first naturally suggested itself. A poliomyelitic infection must be considered, though against it was the slow onset, the absence of constitutional reaction, the persistence of such tremendous lymphocytosis nine weeks after the onset, and the absence of polymorphonuclear leucocytes in the cerebrospinal fluid, even in the early stages of the disease. A toxic polyneuritis would explain his palsies in the extremities and in the cranial nerves, and the loss of his deep reflexes. As far as Dr. Kennedy knew, polyneuritis did not produce lymphocytosis of this character in the cerebrospinal fluid, and, the failure of the cerebrospinal fluid to reduce Fehling's solution on boiling, had always been considered to be indicative of a grave meningitic involvement.

Letters to the Editors.

HOSPITAL SHORTCOMINGS.

NEW YORK, January 3, 1915.

To the Editors:

In your editorial article, January 2d, entitled *Hospital Shortcomings*, I note your expression of surprise and regret at finding out that so many citizens prefer to remain in their homes, attended by their family physicians, when sick, instead of resorting to hospitals. I note also that you advocate further encroachments by the health department upon the few remaining citizens left after it has vaccinated the children, removed tonsils and adenoids, given pertussis vaccine, made Wassermanns, treated them for tuberculosis, etc., without even making the slightest attempt at finding out whether or not they are able to pay for having the same work done by men to whom the State has granted its license to practise medicine after years of hard work and the expenditure of thousands of dollars.

Is it possible that you, the editors of the *NEW YORK MEDICAL JOURNAL*, are so out of touch and sympathy with the economics of the profession that you do not realize that the dispensary abuse and the pauperization of citizens by the health department are taking the bread out of the mouths of physicians and their families to the extent of millions of dollars each year?

PHILIP EMBURY, M.D.

[The writer of the foregoing letter has apparently not read our editorial article on this subject in the *JOURNAL* for December 19, 1914.—Eds.]

GERMICIDAL SOLUTIONS.

NEW YORK, January 19, 1915.

To the Editors:

Thank you for publishing an extract from my little Christmas story about mixing iodine with calomel.

Would it appeal to you, in view of the cases of bichloride poisoning and also of the fact that many physicians and the public appear wedded to the employment of corrosive sublimate as a wound-wash, as being worth while to elaborate the use and efficiency of three common tablets, viz.: Calomel gr. i, ammonium chloride grs. iii, potassii iodidi grs. v, boiled in a pint of water with two heaping teaspoonfuls of table salt? None of the ingredients or separate tablets would be poisonous if taken, and the germicidal strength of the filtered solution is about equal to one to 3,000 mercury bichloride, but as near as I can get at its terminal change it does represent about one to 8,000 mercury biniodide.

Clinically it works well. Bacteriologically I have been able to test it only with blood serum cultures and its behavior has always been as might be anticipated.

A number of observers place the germicidal effect of mercury biniodide at about three times that of the bichloride. The sole advantage and at the same time the greatest danger of the corrosive sublimate is that it is dispensed in tablet form. Suppose then we might obtain a better salt in nonpoisonous form (the use of three easily procured tablets) would it be worth while for me to see just where it stands in the scale of antiseptics, especially when its clinical value is well known.

DOUGLAS H. STEWART, M.D.

LACKNER'S POISON BOTTLE NOT PATENTED.

NEW YORK, January 28, 1915.

To the Editors:

Glad to give to the public the little I can give toward eradicating suffering and death, thus I am pleased to announce that from this day, the Lackner poison bottle, as described and pictured in the *NEW YORK MEDICAL JOURNAL* for November 21, 1914, is the property of all. As public property, it may be made and sold by anyone in open competition and without the creation of a monopoly; induce National legislation in the governing of poisons and poisonous drugs so sold into the home or dispensed in hospitals—and therethrough eventually eradicate all accidents, suffering, and deaths due to the usual "mistaking" of poisons, either accidental or "accidental-intentional."

I thank you for announcing this gift to the public and for past courtesies. I beg to remain,

W. J. LACKNER, Inventor.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Selected Addresses on Subjects Relating to Education, Biography, Travel, etc. By JAMES TYSON, M.D., LL.D., Professor Emeritus of Medicine, University of Pennsylvania. Philadelphia: P. Blakiston's Son & Co., 1914. Pp. ix-366. (Price, \$1.75.)

A volume of addresses by so distinguished and experienced a teacher as Professor Tyson could not fail to attract favorable attention from the medical profession all over the world. The thoughts which the practice of our profession puts into a clever head must necessarily be of prime

interest and importance, and it is regrettable that the gift of writing is comparatively rare among us, so that only those who come in immediate contact with a physician are likely to derive benefit from his exceptional ability. This collection will be found full of meat, from the remarks on the requirements of a modern college education, made in 1884, to the touching and grateful words of the *envoi*, pronounced at the dinner tendered to Doctor Tyson on his retirement from the chair of medicine at the University of Pennsylvania. In No. 6 there is an excellent definition of the general practitioner; "clearly, in the broadest sense, he is one who shrinks from no service which belongs to his art." In this same address the author sets forth what he believes the medical student should know; written in 1893, this proved to be a forecast of what is now beginning rightfully to be expected of our matriculates. An occasional phrase seems to betray a Quaker training of the author, and he sets forth in no uncertain words his belief that some day we shall be rewarded or punished according to our deserts; evidently, therefore, the study of medicine does not always lead to atheism as cynics of the middle ages used to insist. The trained nurse will find an address made especially for her instruction, yet one need not be either physician or nurse to enjoy the kindly philosophy and ripe judgment manifested in all the chapters. We wish the doctor had eliminated a few words and phrases; "illy" has no more place in English than "welly" and "goes without saying" is not English and is seldom used as the French use it, beside being invariably superfluous. *De gustibus et coloribus*, etc., however, we suppose, and these are comparative trifles. We hope there will be a wide audience for these addresses, quite outside of the writer's pupils—"perhaps no living American teacher has had more"—for the essay form is the highest kind of literary art and needs encouragement among us. We believe that the book needs only to be known to become popular, and if antimedical people ever read anything but their own juggled statistics and inflammatory rhetoric, they will find it most educational, particularly the address on the general practitioner, already referred to, and that on considerations preliminary to the study of medicine, which takes up disease and medical delusions.

The Heart in Early Life. By G. A. SUTHERLAND, M.D., F.R.C.P., Senior Physician to the Hampstead and North-West London Hospital; Physician to Paddington Green Children's Hospital. Oxford Medical Publications. London: Henry Frowde (Oxford University Press), Hodder & Stoughton, 1914. Pp. xvi-211. (Price, \$2.)

The publication in 1908 by James Mackenzie of his book, *The Diseases of the Heart*, truly marked an epoch in the study of cardiac affections and well nigh revolutionized the entire subject. Not since then has any clinical volume on the heart appeared which deserved to rank in the same class with Mackenzie's work, but the present book by Sutherland perhaps deserves this honor. It is truly an extension of Mackenzie's methods of observation and analysis of cardiac conditions to the realm of the young heart, and may be regarded as supplementing and rounding out Mackenzie's original work. In addition to the use of Mackenzie's methods of study, Sutherland has employed the newer ones which have been opened up by the work of Einthoven, Lewis, and others with the electrocardiograph. Sutherland's book opens with a brief chapter on the interpretation of polygraphic tracings, followed by some remarks on the modern views about the heart and the methods of studying its actions and perversions. Then follows the first section, which deals with those cardiac disturbances which must be regarded as functional, including various forms of arrhythmia, rapid and slow heart action, dilatation, cardiac murmurs, and the subjective phenomena associated with these functional conditions. Their prognosis and treatment are also discussed. The second section of the book includes but a single chapter on paroxysmal tachycardia, which is regarded as falling on the borderline between the functional and organic cardiac affections. The third and last section comprises a little more than half of the book and deals with organic heart disease from the point of view of its general symptomatology, origin, diagnosis, treatment, and prognosis. The several different types of organic disease are taken up seriatim for discussion, both as entities and in their relation to other associated conditions. The chapters are illus-

trated with fifty tracings, mostly polygraphic, which should greatly aid the practitioner in understanding the discussions given in the text. In addition to the many other virtues of the book, the author is to be commended for his mastery of clear literary style and a faculty for straightforward lucid presentation of his theme. Like other publications of the Oxford Press, this represents the highest type of the publisher's art. No pediatric or general practitioner who would be abreast of the times can well afford to overlook this work of Sutherland's.

A Manual of Bacteriology. Clinical and Applied. By R. TANNER HEWLETT, M.D., F.R.C.P., D.P.H. (Lond.); Professor of Bacteriology in the University of London; Director of the Bacteriological Department, King's College, London; etc. Fifth Edition. St. Louis: C. V. Mosby Company, 1914. Pp. xii-668. (Price, \$4.50.)

This edition marks a complete revision of the former one and includes the addition of much new material to bring it abreast of modern bacteriological progress. The general form and arrangement of the volume have not been materially altered except for a few instances in which organisms have been placed in the definite groups to which they have recently been shown to belong. Although the preface is dated May, 1914, the work of Strong and Teague on pneumonic plague has not received mention. Similarly, in the discussion of the use of serums and vaccines in pneumonia no mention has been made of the illuminating work of Cole and Dochez. Two other omissions might be mentioned as interesting especially the American physician; namely, the absence of any discussion of the work of Vaughan and his associates on the protein split products, and of any remarks regarding Rosenow's recent publications on the transformations occurring in the streptococcus-pneumococcus group of organisms. In spite of these several omissions of recent work which seem to merit at least passing mention, the volume is to be commended for completeness, conciseness, and clarity. It is well written, well arranged, and well illustrated and leaves little to be desired as a working manual of bacteriology. One of the most commendable features of the author's method of presentation is the inclusion at the foot of each page of the more important bibliography of the subject, together with reference numbers in the text to direct the reader to the original source from which the statements were drawn.

The Fæces of Children and Adults. Their Examinations and Diagnostic Significance with Indications for Treatment. By P. J. CAMMIDGE, M.D. (Lond.). Containing 13 Full Page Plates, 7 of Which Are Colored, and 96 Illustrations in the Text. New York: William Wood & Co., 1914. Pp. viii-516. (Price, \$5.)

Both to the practitioner and to the laboratory worker this book will appeal in many ways, as the importance of this field has been overlooked, largely on account of there having been no authoritative presentation of the subject. Hecht's publication is in German, and although quite extensive does not deal with the feces of adults. Cammidge has made a most useful contribution along these lines, and, although he has drawn on the German text, he has completed the subject by the study of the feces as an aid to diagnosis in adults.

The first eight chapters deal with the technic of the examinations, both physical and chemical. The ninth chapter is in a way the most valuable, as it discusses the diagnostic worth of the examination—in other words, the necessity of correctly interpreting the conditions that are found; a very important point for the consideration of the attending physician. This volume supplies a long felt need and can be recommended highly.

Röntgen-Therapie. (Oberflächen- und Tiefenbestrahlung). Von Dr. H. E. SCHMIDT, Berlin. Vierte neubearbeitete und erweiterte Auflage. Mit 83 Abbildungen. Berlin: Verlag von August Hirschwald, 1915. Pp. x-253.

The first glance at this two hundred and fifty page manual by H. E. Schmidt, of Berlin, just from the press, suggests that more importance be given to obtaining a steady even current, and its proper measuring in röntgentherapy when treating superficial or deep lesions, and the point is well taken, as a steady even nonfluctuating bombardment of light rays, may be crudely compared to the necessary even temperature in a bake oven or a blast furnace for a proper result. Fifty pages are devoted to dermatology and the

treatment of skin disease, seventy-five to instruments and technic, and the remainder of the book to deep lesions of the internal organs. While our American röntgenologists almost universally prefer the interrupterless transformer, Schmidt uses the older induction coil with a Sanitas quick-silver rotary current breaker or interrupter, and he also mentions favorably the Wehnelt interrupter for certain purposes. Filtered, regional raying, hard tubes, and massive doses are featured exhaustively. The extensive application and apparent good results obtained in acute eczematous diseases add much to our stock of knowledge along this line, and the ray is highly recommended in psoriasis, pityriasis rosea, acne vulgaris, ichthyosis, in addition to the various forms of lupus, epithelioma, and all malignant skin affections; in gynecological work for uterine myoma and carcinoma of the cervix, abdominal raying over the pubis and through the pelvic strait with compression tube. This is successful even in advanced age, but the author does not favor vaginal raying and reports many uterine diseases of a hemorrhagic nature to have been overcome long after the menopause. Regional cross fire raying is strongly advocated for the treatment of deep lesions, and Schmidt reports a large percentage of cures in leucemia, goitre, and neuralgia, while rheumatism and multiple sclerosis are modified and benefited. All skin cancers are readily subdued by proper application of the rays. The Mueller and Coolidge tubes are recommended. He cites Josué as successful in arterial sclerosis and high blood pressure by raying through the lumbar region and the kidneys. Good results by Stribel and Wetterer in rhinophyma and pulmonary tuberculosis are frequently noted, also the success of Wunderlich, Gottstein, and Holzknecht in cancer and benign tumors. To increase confidence and enlarge the scope of röntgentherapy, particularly in dermatological work, is the predominant note to be gathered, and many convincing although conservative data are given to illustrate results. A hasty comparative survey of the work of such authorities as Guilleminot, of Paris, Arthur and Muir, of London, Leopold Freund, of Vienna, and some of our American authors, shows this work of Schmidt to be of considerable scientific value to the painstaking conscientious worker in the field of röntgentherapy, especially when we consider how fresh facts often contradict in part earlier conclusions.

Examination of the Urine, and other Clinical Side Room Methods (late Husband's). By ANDREW FERGUS HEWAT, M.B., Ch.B., M.R.C.P. Ed., Tutor in Clinical Medicine, University of Edinburgh; Lecturer Edinburgh Postgraduate Vacation Course. Fifth Edition. Edinburgh: E. & S. Livingston, 1914. Pp. 212.

The purpose of this booklet as stated by Hewat is to present a brief description of the methods of conducting the several analyses usually required in clinical pathological diagnosis and to save the student much time in note taking and in searching the larger works. The volume is indeed very small, measuring a little less than five by three and a half inches, by a half an inch, and the first impression is that it is very brief, although it contains between forty and fifty thousand words of text. The first portion of the book, amounting to nearly one half of the total, is devoted to methods of urine examination including both qualitative and quantitative methods. The remainder is devoted to chapters on the blood, the sputum, pus, the gastric contents, and the feces. In order to cover the most essential aspects of this large field it has been necessary for the author to leave out much that is of importance to the student and he has sacrificed particularly the discussion of the significance of the several procedures and findings—just that phase of clinical pathology which seems to be the most important from the student's point of view. Not only has this sacrifice been made, but to keep the book small in a physical sense it has been necessary for the publishers to use a type which, though clear, is too small for comfortable reading. On the whole the book could scarcely be regarded as filling any definite place, for it is mainly concerned with a presentation of the technical side of clinical laboratory analysis, which, though useful to the practitioner who has his own small laboratory, could quite as readily be found in one of the large textbooks. Moreover, as the significance of the various laboratory findings is that phase of the subject with which the student must become familiar, this booklet would hardly find welcome from him for use as a quiz compend or a *rade mecum*.

Interclinical Notes.

We recently had the pleasure of congratulating one of our assistant editors on his fine work in the department of health. It was owing simply to his modesty that we did not discover, on first perusal, that another of our assistants was editor of the new and unique *Medical Pickwick*. It is Dr. Samuel M. Brickner who has undertaken this work, to which he brings precisely the right gifts and temperament and a training obtained, in part at least, on the NEW YORK MEDICAL JOURNAL, that celebrated school of medical journalism. Since Stevenson made a beginning by writing some notable copy at Saranac, perhaps we shall, like England, some day produce an imperishable Lakeside literature. Such of it as passes under Doctor Brickner's eye will not be lost to fame.

* * *

Beside the characteristic fiction of the *Strand Magazine*, the February issue contains two articles of special interest to the physician. One is on Diet and Athletics, by F. A. M. Webster, and is valuable because it is based solely on practical experience in training men for athletic accomplishment; such an article is worth reams of *a priori* calculations on paper. The conclusion of the writer is eminently useful, if not "scientific"—good food and plenty of it. Mr. Webster points out that remarkable records have been made by vegetarians; it is probably the thinker who needs protein most.

* * *

The second contribution in the February *Strand* of interest to our readers is, curiously enough, a bit of fiction translated from the Russian of Leonidas Andreev by Gerald Leake, R.B.A. It received the remarkable compliment of special study at a session of the Institute of Brain Specialists of Petrograd, which argued as to the diagnosis of the case of the hero. Was He Mad? is the title of this story. Andreev has the usual history of successful writers; years of hard work, writing and rewriting, discouragement, poverty, eventual triumph. The tale will remind our readers of Poe.

* * *

Gregory Mason, discussing the war in the *Outlook* for January 27th, states that the bayonet is in every way inferior to cartridges, and thinks that its use is dying out on that account. He forgets the fun and excitement of the hand to hand fight, factors which tired soldiers will never willingly forego. There is nothing like immediate personal contact with carnage to create the blind intoxication which is the attractive thing about war for the private soldier.

* * *

The *Outlook* for January 27th is the handsome enlarged monthly magazine issue. There is a thoughtful discussion of the immigration bill recently vetoed by the President. The literary test paled into insignificance beside the outrageous sections which would have yielded up to foreign governments the earnest and patriotic men who had fled from the tyranny, autocracy, and nonrepresentative governments they had striven vainly to reform. A most interesting picture in this *Outlook* is that of the group of Red Cross doctors and nurses from Tokio, unmistakably Japanese in physiognomy. Physicians who love their New York should read Elbert F. Baldwin's description of the Cloisters at Fort Washington Avenue and 189th Street, and decide to visit them; on Saturday and Sunday the price of admission is reduced to two dollars.

* * *

Dr. Louis Faugères Bishop opens the February *Nurse* with a communication on the Nature of the Pulse, and Mary Emery Smith follows with a description of the work done by women nurses in the United States navy. This delightful magazine, as interesting as a short story periodical, yet packed with invaluable material for the nurse, trained or untrained, continues to be a credit to the ingenuity and tireless industry of publisher and editor.

* * *

Dr. Theodore B. Sachs discusses Chicago's plan for the municipal control of tuberculosis in the *Survey* for January 30th. According to a paragraph in this same issue, "one child in ten born in the District of Columbia is illegitimate, half their mothers are under twenty-one years of age, and Negro women, half as numerous as whites, have four times as many fatherless children. The way out, the

attorney for the Washington Associated Charities believes, is self government for the District, a higher age of consent, and probation for both fathers and mothers." Doubtless these are ways out; but vasectomy or an analogous procedure would help somewhat.

* * *

Young's Magazine continues to hold its own with its more pretentious contemporaries. The Diary of a Drunkard, by Adele Ritchie, presents the problem, from which the average physician shrinks, of the woman inebriate; the author finds a solution only in suicide. The heroine shoots herself, an uncommon method of self destruction among women we are informed. Progress, by William Weaver, is an amusing skit which attempts to prove that feminine human nature is the same now as it was seven thousand years ago, and has the same effects on the male of the species. The Story, by Ellis Parker Butler, is different from that accomplished author's usual style.

* * *

A picture in the *Strand* for January, 1915, of the Chevalier Bayard fighting a duel with Don Alonzo, each combatant armed with both rapier and dagger, reminds us of a boyhood hope that some day we should read a story of some hero who was among the first to learn fencing with the rapier alone—modern fencing in a word. We can imagine the triumph of any enemy of such a hero who found him apparently unprepared for a fight because he lacked the short dagger for use in the left hand, and his subsequent stupefaction and dismay when he found himself not only unable to touch the man of the single weapon, but defenseless against his novel parades and lunges.

* * *

"By God, you little bushranger, you've got guts," observes the hero of Miss Amélie Rives's latest story to a young woman. The figure of speech is admirable, but it is almost two centuries since it has been in refined use; it has a fine, straightforward, British, no nonsense about us, Fielding and Smollett flavor.

* * *

Meetings of Local Medical Societies.

MONDAY, February 8th.—New York Ophthalmological Society; Society of Medical Jurisprudence, New York; Roswell Park Medical Club, Buffalo; Williamsburg Medical Society, Brooklyn; New Rochelle Medical Society.

TUESDAY, February 9th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Federation of Medical Economic Leagues of New York; Medical Society of the County of Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine (Section in Medicine); New York Obstetrical Society; Onondaga Medical Society; Medical Society of the County of Oneida.

WEDNESDAY, February 10th.—New York Pathological Society; New York Surgical Society; Alumni Association of Norwegian Hospital, Brooklyn; Schenectady Academy of Medicine; Medical Society of the Borough of the Bronx; Richmond County Medical Society; Dunkirk and Fredonia Medical Society; Rochester Academy of Medicine; Medical Society of the County of Montgomery.

THURSDAY, February 11th.—New York Academy of Medicine (Section in Pediatrics); Gloversville and Johnstown Medical Association; Physicians' Club of Middletown; West Side Clinical Society, New York; Brooklyn Pathological Society; Blackwell Medical Society of Rochester; Jenkins Medical Association, Yonkers; Society of Sanitary and Moral Prophylaxis, New York; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of Village of Canandaigua; Cayuga County Medical Society.

FRIDAY, February 12th.—New York Academy of Medicine (Section in Otolaryngology); Society of Ex-Interns of the German Hospital in Brooklyn; Flatbush Medical Society, Brooklyn; Eastern Medical Society of the City of New York; Society of Alumni of St. Luke's Hospital.

SATURDAY, February 13th.—New York Association of the Medical Reserve Corps of the United States Army.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending January 27, 1915:

Bryan, W. M., Passed Assistant Surgeon. Leave of absence for twenty-three days from January 20, 1915, revoked. **Carter, H. R.**, Senior Surgeon. Directed to proceed to Columbia, S. C., and other places in that State, in order to confer with the State health officer, and afterward to make an investigation in regard to the malaria conditions caused by the impounding of waters by the Parr Shoals Hydroelectric Company. **Duffy, B. J.**, Assistant Surgeon. Directed to proceed to Washington, D. C., and report at the bureau for further orders. **Irwin, Fairfax**, Senior Surgeon. Authorized to send two men, when necessary, from Marcus Hook to Philadelphia, Pa., with material for fumigation of vessels which cannot be fumigated at Marcus Hook. **Lanza, A. J.**, Passed Assistant Surgeon. On request of the Springfield Public Welfare Association, Springfield, Mo., directed to deliver in that city a series of lectures on public health subjects, from February 8 to 11, 1915; then to proceed to Jasper County and such other places in Missouri as may be necessary to advise in regard to improvement of sanitary conditions in mines and metallurgical plants, with special reference to the prevention of tuberculosis. **Leake, J. P.**, Passed Assistant Surgeon. Directed to proceed to Blackwood and such other places in southwestern Virginia as may be necessary to investigate an outbreak of cerebrospinal meningitis. **Le Prince, J. A.**, Sanitary Engineer. Directed to proceed to Columbia, S. C., and other places in that State, in order to confer with the State health officer, and afterward, under direction of Senior Surgeon H. R. Carter, to make an investigation in regard to the malaria conditions caused by the impounding of waters by the Parr Shoals Hydroelectric Company. **Lloyd, B. J.**, Surgeon. Detailed, at the request of the officers of the League of Washington Municipalities, to attend the fifth annual convention of that association, to be held at Olympia, Washington, January 25 to 27, 1915. **Mullan, E. H.**, Passed Assistant Surgeon. Directed to proceed to Philadelphia to serve as recorder of a board for the physical examination of certain commissioned officers of the Service. **Nydegger, J. A.**, Surgeon. Granted seventeen days' leave of absence, on account of sickness, from February 1, 1915. **Robertson, McC.**, Surgeon. Granted three days' leave of absence from January 15, 1915, under paragraph 193, Service Regulations. **Schwartz, Louis**, Assistant Surgeon. Directed to proceed to San Francisco, Cal., and report arrival to the bureau by telegraph. **Slaughter, W. H.**, Assistant Surgeon. Granted five days' leave of absence on account of sickness from January 18, 1915. **Smith, F. C.**, Passed Assistant Surgeon. Granted three days' leave of absence from January 19, 1915, under paragraph 193, Service Regulation. **Stimpson, W. G.**, Assistant Surgeon General. Directed to proceed to Philadelphia to serve as chairman of the board for the physical examination of certain commissioned officers of the Service. **Voegtlin, Carl**, Professor. Directed to proceed to Spartanburg, S. C., when necessary, for the purpose of supervising and participating in the special investigation of pellagra. **Wertenbaker, C. P.**, Surgeon. Granted one month's leave of absence on account of sickness from January 10, 1915.

Board Convened.

Board of commissioned officers convened to meet at 410 Chestnut Street, Philadelphia, for the purpose of making a physical examination of certain commissioned officers of the Service. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Senior Surgeon Fairfax Irwin, member; Passed Assistant Surgeon E. H. Mullan, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending January 30, 1915:

Pariseau, George B., Captain, Medical Corps. Upon

expiration of present leave of absence, ordered to proceed to Fort Hancock, New Jersey, and report in person to the commanding officer of that post for duty, and by letter to the commanding general of the Eastern Department. **Waring, John B. H.**, Captain, Medical Corps. Designated to conduct a correspondence course under the supervision of the chief of the Division of Militia Affairs, for medical officers of the organized militia of Colorado and Utah; ordered to report by letter to the chief of the Division of Militia Affairs, for instruction and to the adjutant general of the States mentioned for the names of all medical officers desiring to take advantage of such a course. **Weed, Frank W.**, Captain, Medical Corps. Granted one month's leave of absence upon arrival in the United States. **Williams, Allie W.**, Major, Medical Corps. Ordered to proceed at the proper time to Washington Barracks, D. C., and report in person to the commanding officer of that post for detail and service as a member of the board of officers, to meet at that post February 6, 1915, for the examination of candidates for probational appointment as second lieutenants in the Corps of Engineers; upon completion of the duty contemplated will return to his proper station.

Births, Marriages, and Deaths.

Married.

Doyle-McCormick.—In Waltham, Mass., on Wednesday, February 3d, Dr. Francis William Doyle and Miss Marie Josephine McCormick. **Murphy-O'Brien.**—In Boston, Mass., on Thursday, January 21st, Dr. John M. Murphy and Miss Bertha F. O'Brien. **Newton-Schahofskaya.**—In Petrograd, Russia, on Saturday, January 23d, Dr. Philip Newton, of Washington, D. C., and Princess Helene Schahofskaya. **Reinoehl-Van Syckel.**—In Lebanon, Pa., on Monday, January 25th, Dr. John K. Reinoehl and Mrs. Miriam Bowman Van Syckel.

Died.

Allen.—In Augusta, Ga., on Tuesday, January 19th, Dr. Joseph Eve Allen, aged fifty-six years. **Appley.**—In Grand Rapids, Mich., on Thursday, January 21st, Dr. H. V. Appley, aged sixty-four years. **Bodine.**—In Louisville, Ky., on Monday, January 25th, Dr. James M. Bodine, aged eighty-four years. **Comfort.**—In Logan, Ia., on Friday, January 22d, Dr. F. A. Comfort, aged seventy-three years. **Dewar.**—In Cedar Springs, Mich., on Sunday, January 17th, Dr. John B. Dewar, aged sixty-one years. **Digges.**—In La Plata, Md., on Wednesday, January 13th, Dr. John T. Digges, aged seventy-three years. **Feigel.**—In Chicago, Ill., on Sunday, January 24th, Dr. George C. Feigel, of Syracuse, N. Y., aged forty-six years. **Gamble.**—In Troy, N. Y., on Sunday, January 17th, Dr. Thomas A. Gamble, aged seventy years. **Gragg.**—In Gragg Station, Tenn., on Wednesday, January 20th, Dr. W. H. Gragg, aged sixty-one years. **Kalisher.**—In New York, on Wednesday, January 27th, Dr. Joseph Kalisher, aged fifty-seven years. **Knowlton.**—In Camden, N. J., on Saturday, January 23d, Dr. William W. Knowlton, aged forty years. **Lesage.**—In Dixon, Ill., on Friday, January 22d, Dr. Charles A. E. Lesage, aged forty-three years. **Pratt.**—In Plymouth, Mass., on Thursday, January 21st, Dr. Herbert James Pratt, aged seventy-three years. **Richards.**—In Philadelphia, on Saturday, January 23d, Dr. D. Bruce Richards, aged forty-seven years. **Rutledge.**—In Owensville, Ohio, on Friday, January 22d, Dr. G. G. Rutledge, aged fifty-two years. **Schureman.**—In Newark, N. J., on Saturday, January 23d, Dr. Charles Augustus Schureman, aged seventy years. **Searle.**—In Albany, N. Y., on Wednesday, January 20th, Dr. Frank Searle, aged twenty-four years. **Shertzer.**—In Baltimore, Md., on Friday, January 22, Dr. A. Trego Shertzer, aged seventy-one years. **Wilson.**—In Toronto, Ontario, on Friday, January 22d, Dr. Roy Wilson, aged twenty-five years. **Yeager.**—In Mineral Wells, Texas, on Tuesday, January 19th, Dr. C. F. Yeager, aged sixty-seven years.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843

VOL. CI, No. 7.

NEW YORK, SATURDAY, FEBRUARY 13, 1915.

WHOLE No. 1889.

Original Communications.

THE SHOCKLESS OPERATION.

BY WILLIAM FRANCIS CAMPBELL, M.D., F. A. C. S.,
Brooklyn, New York,

Professor of Surgery, Long Island College Hospital.

It often takes a long time for simple truths to permeate the outer crust of custom and find lodgment in a soil that favors growth and fruition. The perfection of modern surgical technic is witness to many a hard fought intellectual battle, to controversial acrimony, and scholastic schism, before general homage was paid its rightful supremacy.

There is always heat before light.

To those who have given much thought to surgical technic, its evolution has been most interesting and suggestive. In former times the most skillful operator was he who worked with the greatest rapidity. Surgeons vied with each other in marvelous feats of rapid dexterity, while the watch was held over them, to proclaim perchance the breaking of all previous records. The greatest surgeon was the most rapid operator. An operation was a feat of manual skill, a sort of sleight of hand performance. And the patient—either died of shock or was rescued from shock after many days of critical convalescence. Shock was the extreme depression which naturally followed a major operation—its cause was not understood, its prevention not seriously contemplated.

Later, as the administration of general anesthesia was perfected, surgeons ceased to operate by the clock and began to appreciate that the surgeon himself, his temperament, his methods, had much to do with the conservation of the patient's vital forces; the delicate handling of tissues, exact hemostasis, the avoidance of tearing and dragging manipulations, all these are vital factors in diminishing the amount of shock. As Moynihan observes, "a surgeon should have the hand of a woman, and the heart of a lion; not the claws of a lion and the heart of a lamb."

With all this perfection of technic, however, still shock was a frequent occurrence, and those who thought deeply felt that "the one touch more" needed to make the modern operation satisfactory was the elimination of shock. But shock was for a long time such an indefinite entity; the subject of much speculation, but little practical experimentation, that not much was accomplished in this field until there appeared the classical contribution of Crile, with his indubitable evidence, founded upon extensive experimentation, which placed the cause and preven-

tion of shock upon a rational basis. *Anesthesia gave us the painless operation, antiseptics the feverless convalescence*; but there was one more ideal to attain, and this ideal is the gift of Crile—the *shockless operation*. This is the most important contribution to surgery that the twentieth century has thus far witnessed. Its far reaching importance is not yet appreciated.

We now know that shock is a condition of vital exhaustion produced by excessive nerve irritation, hemorrhage, or sepsis, and characterized by vasomotor paralysis and abnormally low blood pressure. But Crile has taught us much more than this; he has demonstrated the integration of the nervous system, and shown that shock is not a condition associated only with traumatism, but that it may be produced by divers causes, such as fear and worry, physical injury, infection, hemorrhage, excessive muscular exertion, starvation, insomnia.

Shock is really excessive fatigue, exhaustion. The vital energy stored in the brain is depleted to a point below which vital integrity is menaced. Now the climax of Crile's work is not in the fact that he has definitely classified surgical shock, but that he has placed shock upon such a broad scientific basis that surgical shock is found to be but one of the incidents in the broad gamut of life's exigencies.

Shock may be approached through many avenues of which traumatism is but one. The histological changes are identical, whether they are caused by emotion alone, by physical injury alone, by hemorrhage alone, by starvation alone, by insomnia alone. Any one of these various factors acting alone or in combination produces the same changes. This conception of shock so inclusive and comprehensive, at once broadens the horizon and revolutionizes our therapeutic endeavors.

The prevention of shock no longer consists of measures employed solely at the operating table; it begins long before the actual operation, it takes cognizance of the patient's emotions, endeavors to banish fear and worry, encourages an equitable and hopeful preoperative mental attitude, and conserves the patient's vital capital for the traumatic ordeal which operation imposes. Thus the surgeon must be something more than a skillful manual technician, he should be a practical psychologist versed in the technic of mental suggestion that creates an atmosphere of courage and hope.

We have discovered that while general anesthesia gives the painless operation, it does not insure a shockless operation. Inhalation anesthesia protects the brain against destructive psychic strain, but not against the effects of local operative injury; something additional is needed to protect the brain from

operative strain, and this "one touch more" has been attained by combining general anesthesia with local anesthesia and thus excluding from the brain all stimuli, both psychic and traumatic.

The final aim of surgical technic is the prevention of shock, and Crile has founded a new principle of operative surgery in introducing anociassociation. Thus by blocking the operative field with local anesthetics the brain is protected from the effects of local operative injury. In other words, the field of operation by the use of local anesthetics is temporarily detached from the brain, and thus the brain receives no stimuli from the traumatized area and discharges none of its stored energy.

In our experiments with this method of operating we have been most gratified with the results, and our staff are most enthusiastic over both the immediate and remote results. After all, the operator does not always appreciate the results of his operation. He is often satisfied if the patient leaves the table in good condition; he concerns himself little about the postoperative sequelae unless they are positively dangerous. It is the nurse who patiently follows the postoperative convalescence that can give the best evidence, and she it is who is most enthusiastic about the anoci technic. The postoperative distress both in wound and intestine is minimized and often nil, the convalescence is more rapid, and many of the unpleasant memories associated with a hospital experience are obliterated.

We have found that the practice of anociassociation does not begin at the operating table; it begins when the patient enters the hospital. Anociassociation begins with the abolition of fear and worry. The atmosphere of courage and cheer imparted by the hospital attendants does much to fortify the patient. If the patient is to remain in the hospital several days before operation, measures should be employed to quiet the nerves and, most important of all, to insure refreshing sleep. There is nothing equal to sleep for restoring and conserving vital energy. A patient who has been deprived of sleep is a patient whose vital capital has been impaired, and to come to the operating table thus handicapped is like embarking in an enterprise with no capital in the bank.

We believe, too, that anesthesia should be begun about two hours before operation. By that we mean that sleep should be induced and maintained until general anesthesia is begun. By placing the patient in a quiet, dark room, and by the administration of morphine and hyoscine the patient passes into a state of drowsiness and then into a sound sleep from which he does not awake until after the operation, and with no memory of operating room, anesthesia, or operation. Thus are obliterated many distressing recollections which patients used to carry with them often for years.

Furthermore, the blocking of the operative field by local anesthesia not only protects the brain from operative strain and thus prevents shock, but it insures to the patient a painless postoperative wound. Many of our patients on recovering from the anesthesia doubt that they have been operated upon, because they can feel no wound, and the postoperative distress that comes from intestinal paresis and gas pain is minimized and often obliterated. In a

word, there is a marked contrast in the postoperative convalescence of patients operated on by the anoci method and those without it.

During the past year we have kept accurate records of our patients during the operation by having the pulse recorded every five minutes. The pulse is an accurate guide of the patient's condition during operation, and the surgeon who seeks to interpret it intelligently will find that it is the true *nocimeter* of his technic. The more accurate his anociassociation, the more stable the pulse; whenever the pulse becomes rapid there is always a cause in faulty technic, and after a time the operator can correlate the rapid pulse and faulty technic with gratifying accuracy, so that the state of the pulse at the close of the operation is almost positive evidence of the character of the technic employed.

Without anociassociation it was the rule that our patients left the operating table with pulse accelerated; after a laparotomy the pulse would average from 100 to 120. With anociassociation, it is the rule for our patients to leave the operating table with the pulse better and slower than when the operation began. Of course, we appreciate the stimulating effects of ether on the pulse much more at the beginning of operation than at the close when the quantity is much diminished, but comparing patient with patient, the anocioperation, judged by the patient's pulse, is indisputably superior.

For example, note the results in a patient that may be fairly offered as a test case; a case of diabetic gangrene in a patient sixty-eight years old. The vital energies of this patient have been well nigh exhausted by pain and mental distress for the past three months, during which time he has suffered from a gangrenous process beginning in the little toe and gradually invading the tissues on the dorsum of the foot. The arteries show marked sclerotic changes, and the urine shows five per cent. sugar. Here is a patient with crippled tissues and crippled circulation—tissues crippled by the devitalizing influence of diabetes; circulation crippled by the slow but certain obliterating process of arteriosclerosis. Here is presented a problem for the most astute surgical judgment.

The first question is, not how shall we save the patient's limb, but what shall we do to save the patient's life? The subsidiary consideration is, how much of the limb is it necessary to sacrifice in order to save the patient's life? Already the futility of clipping a small fragment of the extremity is demonstrated by the removal of two toes and their metatarsal bones and still the gangrenous process marches on. It is evident that the gangrenous process can be arrested only by amputation above the knee through the lower third of the thigh.

Here, then, is a major operation in tissues crippled by two devitalizing factors, and in a patient with vital capital much impaired by continued pain and suffering. We find from our notes that the patient starts the operation with a pulse of 96. Every precaution is taken to block the field of operation with local anesthesia. Each structure is recognized and infiltrated with novocaine before being cut. Each vein and artery is ligated before being cut. The operation has not been a rapid one; it has taken a half hour to perform, but note that

it has been a shockless operation, for the patient's pulse at the close of the operation is 72. This tells the story. The patient has not lost a dram of blood, and the practice of anociassociation has for the time being disconnected the field of operation from the brain, and the patient returns to his bed with vital forces undiminished and undisturbed.

The happy results of anociassociation are nowhere demonstrated to better advantage than in abdominal operations. The complete relaxation of the abdominal wall, the painless postoperative wound, the absence of intestinal paresis and gas pains, the speedy convalescence, are the indisputable facts which attest the beneficence of the anoci method. The method takes time, and careful attention to detail. It individualizes the patient; it necessitates the intelligent cooperation of every member of the hospital staff; but it pays, and the returns are shown in a marked reduction in the mortality rate and the postoperative morbidity.

394 CLINTON AVENUE.

DISEASES OF THE EPIDIDYMS AND TESTICLE.*

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I have recently had three cases which I wish to describe as representing three different conditions of the epididymis and testicle which might easily be mistaken one for the other. Epididymitis and orchitis are too often confounded, and it is not an unnatural mistake, for as one grasps the testicle and the inflamed epididymis, the epididymis is felt to be enlarged and to surround the testicle so that both together form one mass; and it is difficult to differentiate between the body of the testicle proper and the epididymis itself. Let me make this clear by a little sketch (Figs. 1 and 2).

Epididymitis is met with far more frequently than orchitis or inflammation of the body of the testicle. Its most common cause is gonorrhea. It is brought about by direct extension of the gonococci through the vas deferens to the epididymis. Another frequent cause of epididymitis is traumatism and it is often seen after the passage of an instrument through the urethra, as, for instance, in old men who have to use a catheter habitually or following the passage of a sound in a patient with stricture. Epididymitis is also noted very frequently as a sequel to the operation of prostatectomy.

Until quite recently the exact *modus operandi* of the causation of these traumatic inflammations was not clearly understood, but experiments made in Finger's clinic have thrown some light upon it. One of Finger's assistants, by the application of electricity, artificially caused peristaltic movements in the vas deferens, so that microorganisms would be drawn from the urethra and pushed along, by the peristaltic movements of the vas; and we occasionally come upon a case of epi-

dymitis which has been engendered by a direct blow upon the testicle or a muscular strain of the body. Such cases are, unfortunately, too often due to the lighting up of a latent focus of tuberculosis in the epididymis, but apart from that we do occasionally see such a case which is known to be tuberculous in origin.

The etiological factors of orchitis or inflammation of the body of the testicle itself, are syphilis, malignant disease, which is nearly always sarcoma, and an acute inflammatory process from metastasis in the course of mumps.

Gonorrheal epididymitis. The first patient which I wish to present has a typical gonorrheal epididymitis. This patient developed gonorrhea two weeks ago, but was obliged to continue at his occupation of motorman during the course of the disease. After ten days he observed that he had to pass his water very frequently, every half hour or so. Each act of urination was accompanied with a good deal of tenesmus, showing that the gonococci had penetrated as far as the posterior urethra. From the posterior urethra they passed through the mouths of the ejaculatory ducts, through the vas deferens and into the epididymis where they set up a typical gonorrheal epididymitis. On palpating the testicle we note that it is red, inflamed, swollen, and intensely tender. The epididymis is enormously swollen and surrounds the testicle, and there is a small amount of fluid in the sac of the tunica vaginalis forming a slight hydrocele. The discharge, as is usual in these cases, ceased at the time the testicle became enlarged.

Before going on to the treatment of the present case I would like to say a few words about the prevention of this complication. In the course of an acute gonorrhea there is not much to be done to prevent epididymitis except by the use of a suspensory bandage and the avoidance of muscular activity. The passage of sounds or forced injections is absolutely contraindicated. After the gonorrhea has become subacute or chronic and the time for local treatment by sounds, massage of the prostate, and irrigations has arrived, the surgeon is sometimes unpleasantly surprised by the occurrence of an epididymitis following a massage of the prostate or a dilatation of the urethra. The experiments in Finger's clinic have taught us to explain the occurrence of the phenomena by organisms which are in the posterior urethra being drawn through the ejaculatory ducts into the vas deferens by the peristaltic action going on in the latter.

A great deal may be done to prevent this unpleasant accident. If before every prostatic massage the interior and posterior urethra is thoroughly irrigated, the posterior urethra will be freed from organisms at the time of the massage and there will be no organisms present to be drawn into the vas deferens.

After this digression, let us consider the methodical treatment of the present case. If this man had come within the first few hours after the beginning of his attack, we could have applied three or four leeches along the spermatic cord with advantage, but they are useful only at the very beginning of the attack. As the patient had already had his epididymitis for three days when he came, we put him

*A clinical lecture at the Long Island College Hospital. The illustrations are by Chester T. Stone, student at Long Island College Hospital.

on the regular routine treatment which we employ in all of these cases, consisting of rest in bed, suspension of the testicles with a handkerchief bandage and hot applications, either flaxseed poultices, lead and opium wash, or liquor aluminii acetatis. The particular form of application is immaterial, provided that moist heat is applied. At one time cold applications (ice bag) were the favorite remedy, and while they cause a subsidence of the inflammatory symptoms promptly, their use is apt to be followed by a hard, tough infiltration of the epididymis, which is never absorbed, but remains and blocks up the epididymis, causing sterility. For epididymitis heat is the remedy *par excellence*. In addition to hot applications locally, we are in the habit of ordering hot sitz baths for the patient, for half an hour at a time three times a day. In cases where the pain is severe and not relieved by hot applications, a twenty per cent. ointment of guaiacol with wool fat and petrolatum is often useful in relieving the pain. This should be covered with cotton with a layer of wax paper or oiled silk on the outside. A thermophore, hot water bag, or hot fomentations are then applied outside the dressing. The guaiacol ointment usually allays the pain promptly and should be changed three times a day. At the time of changing the dressing the patient should take his hot sitz bath for half an hour. The guaiacol ointment may be continued as long as the pain lasts, and after the skin is eroded it should be brushed over with nitrate of silver solution, ten per cent., and dressed with fluid extract of hamamelis.

In cases where a great deal of effusion has taken place in the cavity of the tunica vaginalis, it is desirable to relieve the tension caused by the hydrocele promptly by drawing off the fluid with an aspirating needle. In cases of epididymitis which are not very severe, the Horand-Langlebert suspensory bandage with a thick pad of cotton batting fills the indications of rest, warmth, and suspension, and at the same time permits the patient to walk about without pain.

After the patient is out of bed and begins to go about, he should continue the use of the suspensory bandage, keep the testicle well enveloped in cotton, and promote absorption of the inflammatory infiltrate by means of a 33.3 per cent. ichthyol ointment. In order to prevent sterility it is important to promote the absorption of newly formed tissue in the epididymis. In recent cases, while the infiltrate is soft, this may be accomplished by massage or kneading of the infiltration between the thumb and finger, but in cases of long standing where the infiltration has become hard and dense all such attempts are unsuccessful. Under the treatment above described this patient will probably get well without any mass being left in the epididymis to cause subsequent sterility.

The treatment as described is applicable to the majority of cases of epididymitis, but we sometimes meet with an extremely severe case where the pain is so intense that morphine will not relieve it, and which is bound to result in the formation of a heavy mass of scar tissue blocking off the vas deferens and causing sterility. These cases are now very amenable to treatment by the method of operation suggested by Francis R. Hagner, of Washington.

The patient is anesthetized, an incision made through the scrotum, and the testicle and epididymis are brought out of the wound. The sac of the tunica vaginalis is opened and the hydrocele fluid is permitted to escape. Then multiple punctures with a fine bladed tenotome are made into the substance of the inflamed epididymis. In many cases small collections of pus which contain gonococci are found in the epididymis. These small abscesses are evacuated and washed out with a solution of bichloride one to 1,000. The testicle is then returned to its place in the scrotum and the wound closed with sutures. In my experience the pain has been instantly relieved by this simple operation and never returns, the temperature drops to normal and remains there, and resolution goes on with greater rapidity than in the similarly severe cases in which operation is not done. I consider this a most valuable measure and hold it in reserve for the exceptionally severe cases.

Let us now consider the condition of sterility, which is brought about by the plugging of the vasa deferentia as the result of double epididymitis. While a bilateral epididymitis is not always followed by sterility, it occurs in the majority of cases. Finger investigated 244 patients who had double epididymitis and found that 207 suffered from azoospermia. Until a few years ago this condition was absolutely hopeless, but, in 1901, Edward Martin, of Philadelphia, devised an operation which in many cases has successfully relieved it. He transplanted the severed end of the vas into the testicle or epididymis above the knot of infiltrate which blocked the passage, and so opened a new channel for the exit of the spermatozoa (Figs. 3, 4, and 5).

As to the results of this simple operation, I should say that about fifty per cent. of the results are successful and that living spermatozoa would be found in the ejaculated semen in half the cases operated in. The spermatozoa are not found immediately after the wound heals. It usually takes at least a month before they reappear in the secretion, probably because there is a certain amount of swelling and congestion of the vas deferens which prevents them from coming out, but after a while matters assume their normal condition, the swelling subsides, and the spermatozoa reappear in the ejaculated secretion.

In talking to a man who is sterile, we can at least say that the operation is not difficult; that it is not dangerous to life; that the period of convalescence is short; that he will be confined in bed only four or five days; and that if the operation is not successful it will not leave him any worse off than he was; and whereas before he was sterile, after the operation he has a fifty per cent. chance of regaining his power of fecundation.

Tuberculosis of the epididymis. The second patient whom I wish to describe also has trouble with his epididymis, and on feeling it I find a small circumscribed nodule of a stony hardness situated in the head of the epididymis. This patient is thirty-five years of age, single, and tells us that he noticed a little lump in the epididymis which has been slowly increasing in size for several months. He comes of a tuberculous family. On examining his prostate per rectum, I find some small, hard, shotlike no-

dules scattered through the right lobe, and the seminal vesicle on the left side is also thickened and infiltrated. The von Pirquet test is positive and we, therefore, have made a diagnosis of primary tuberculosis of the epididymis.

Tuberculosis of the testicle always begins in the epididymis and the body of the testis becomes af-

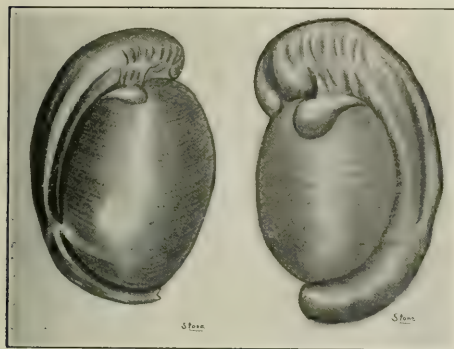


FIG. 1.—Normal testicle and epididymis.

FIG. 2.—Epididymis enlarged and surrounding the body of the testicle.

ected later. The epididymis may be affected in three ways: 1. Primarily, in which the tubercle bacilli are introduced into the general circulation and carried to the epididymis by the spermatic artery and, as in this case, the only evidence of tuberculosis of the body is located in the epididymis; 2, it may be secondary from deposits in the genitourinary organs—the seminal vesicles or prostate, in which case the bacilli are carried down through the vas deferens; and, 3, it may occur as the result of a hematogenous infection from the lungs or kidney. There may be a focus of tuberculosis in the lungs. The bacilli get into the blood circulation and there they are carried to the epididymis through the spermatic artery, or the focus may be in the kidney and the bacilli may be carried to the circulation in the same way.

The course which these cases run is usually very slow. Nodules form in the epididymis and lie there latent. Eventually they become active, usually as the result of some traumatism or blow, or perhaps nothing happens and they simply light up and coalesce, suppurate, break down, and cause inflammatory phenomena about them. Now for a time the process is in the epididymis and that is the time for prompt action. Later, in three fourths of the cases, after the disease has rested in the epididymis for a time, it spreads to the testicle, which breaks down and becomes filled with pus, the pus breaks through the skin, and a discharging fistula forms. In the case which we have examined the prostate and seminal vesicles have already become affected. Rectal examination shows the prostate to be studded with hard nodules, and after expressing the pus from the meatus and having it examined microscopically, we found tubercle bacilli.

The prognosis of these cases is bad if they are left alone. Very, very rarely it happens that the

nodules become encapsulated and then fibroid degeneration takes place, but that is so very rare it ought not to be expected and ought not to be looked for. Valuable time is lost in waiting for any such thing to happen, and in the few cases where it does happen it means only a temporary arrest of the process, which lights up again and runs a very rapid course. The progress of these cases, if left alone, we have a chance to see in neglected cases which come into the hospital. Nodules are first deposited in the epididymis and break down, they slough out, and the testicle becomes infected secondarily and that breaks down and sloughs, and finally the scrotum becomes filled with a mass of sloughing broken down tissue with some fibroid, hard, thick scar tissue; so even if a man should object to having his epididymis removed or his testicle taken out, you can tell him that his testicle is now useless and that it will simply be a menace to his general health if it is left in.

Another danger resulting from leaving in a testicle or an epididymis with tuberculous nodules, is that hematogenous infection of other organs is very likely to occur, or there may be an ascending infection of the tubercle bacilli through the vas deferens, infecting the seminal vesicles, and so a man with tuberculosis of the epididymis is living in a most dangerous condition, and even if it does not cause him any trouble, it is sure to extend, for it will be carried by the blood to the other organs, the lungs or kidneys, or through the vas deferens to the prostate and the seminal vesicles, and a man is doomed as long as he has a focus of tuberculosis in his body.

Of course, as in all tuberculous processes, we may be able to retard caseation, but it is more unsafe to trust to that in the case of tuberculosis of the testicle than almost anywhere else. Outdoor life will cure a case of pulmonary tuberculosis, if it is reached soon enough. It may possibly retard the progress of a tuberculous kidney, and, of course, it will retard the progress of a case of tuberculous epididymitis, if the treatment is properly carried out, but it is too risky to trust to that; so whenever tu-

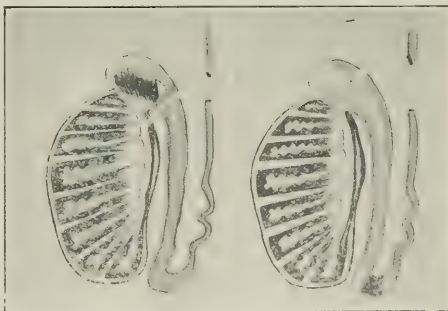


FIG. 3.—Operation of vasotomy, infiltrate in head of epididymis; vas deferens transplanted into body of testicle.

FIG. 4.—Infiltrate in tail of epididymis; vas deferens transplanted into head of epididymis.

berculosis of the testicle or epididymis takes place, it means operation just as promptly as it can be done.

The only two operations to be considered are epididymectomy and castration. Epididymectomy

is the operation of choice, for the reason that it leaves the testicle in and the testicle has a certain effect on the mentality of the individual and upon his masculine characteristics. If epididymectomy or castration is done, the end of the vas ought to be always sewed into the wound. Indeed, some gen-

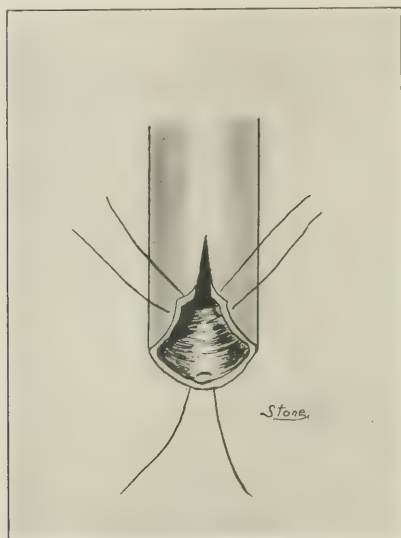


FIG. 5.—Vas deferens divided; longitudinal incision made and sutures introduced ready for anchoring.

itourinary surgeons go so far as to inject with a very fine pointed syringe a mixture of iodoform and glycerin through the vas into the seminal vesicle. They fill the seminal vesicle with the iodoform-glycerin for the purpose of a beneficial effect on any tuberculous process which may be going on. That, however, seems to be a superrefinement of technic.

Castration is called for in those cases where the body of the testicle has become involved. Where the disease has extended to the body of the testicle, there is no use in trying any palliative operation. It will not retard the activity of the tuberculosis. (Figs. 6 and 7.)

The object of the aftertreatment in these cases is to prevent disease in other organs. The patient should be strongly urged to live an outdoor life and should always remember that he is still a tuberculous subject for several years after all the manifestations of the tuberculous process have ceased.

We cannot do anything in an operative way to help the condition of the prostate and seminal vesicles. Operations for tuberculosis of the prostate are useless. We do not accomplish anything, and the patient lives longer if he is left alone and no operation is attempted. A few years ago, many surgeons tried removing the prostate and extirpating the seminal vesicles, in cases of tuberculosis, but the difficulty about such an operation is that it makes a very extensive wound which is very slow in healing and the patient is confined to his bed in the hospital for weeks after the operation is performed, and

after it is done we have not accomplished very much because we have not been able to remove the entire focus. It is much better in these cases to remove the original focus of infection in the epididymis by epididymectomy, and then trust to the powers of nature. The patient should live an outdoor life and trust to the palliative powers of nature to heal the process in the prostate and seminal vesicles.

Sarcoma of the testicle. The third patient is a man thirty-nine years of age who gives the following history: One year ago he noticed a growth in the testicle as large as a bean, which rapidly grew larger and attained its full size in a few weeks. He had no pain until six weeks ago and then had none in the testicle, but all the pain was referred to the back while lying in bed at night and none during the day while up and about. The patient has become emaciated during the last three months, particularly in the last five weeks. He has lost about forty pounds in three months. The Wassermann and von Pirquet reactions are both negative, and transmitted light shows no translucency in the tumor.

The diagnosis of the character of tumors in the scrotum is ordinarily easy by proceeding in a systematic way with the examination, but every now and then we meet with a case where it is necessary to incise the scrotum and expose the testicle before the diagnosis can be made. In the ordinary systematic examination of a tumor of the testicle, it is necessary, first, to determine if the enlargement is in the testis proper or in the epididymis, or if the enlargement is a hernia, an hematocoele, or a varicocele. Hydrocele must also be considered, and it is necessary to know whether it is a hydrocele of the tunica vaginalis or of the spermatic cord.

In the differential diagnosis, the history often throws an important light on the subject. The age, the general condition of the patient, and a family history of tuberculosis are important to ascertain, as well as any previous manifestations of tuberculosis



FIG. 6. Tuberculous of the epididymis; to save body of testicle from involvement, epididymectomy is the operation of choice.

FIG. 7. Tuberculous of epididymis and body of testicle demanding castration.

in the lungs, bones, joints, or genitourinary tract. Inquiries should be made as to the length of time the growth has existed; if it grew slowly, or came on suddenly, and if it is reducible. The character and amount of pain are important. A history of traumatism may throw light on the case. Gonorr-

rhea and syphilis also play an important role in causing enlargements of the testicle. We should inquire as to the previous treatment, if any has been given, and particularly as to the effect of tapping the enlargement, if fluid was drawn off. We should also inquire as to the effect of inunctions of mercury and if iodide of potassium was used in large doses.

Examination of the case should be proceeded with in a systematic manner, first, by palpating the outline of the body of the testicle and separating it from the epididymis. We should outline the shape, size, and density of the tumor, with reference to its fluctuation, elasticity, or stony hardness. We should note if the spermatic cord is enlarged and if the tumor can be reduced in the abdomen. At the same time the condition of the inguinal ring should be investigated to see if it is open and enlarged and, if possible, we should try to notice if an impulse is present on coughing. The condition of the scrotal veins should be ascertained with the patient in the standing position, as a varicocele always disappears as soon as the patient lies down. The symptom of translucency, when present, is of great diagnostic value. It is obtained by viewing the tumor through a roll of paper with a light on the opposite side, and in the presence of fluid the light is reflected of a pink translucent character through the clear walls of the fluid. In the presence of a solid tumor, the light does not shine through, and the symptom of translucency is wanting. Other conditions may interfere with translucency, such as thick sac walls, which would prevent the transmission of light, and blood filling the sac of the tunica vaginalis. A purulent condition of the hydrocele fluid will also prevent the transmission of light, as well as a chylous content of the hydrocele sac. In the tropics, where filaria often causes hydrocele, the fluid is thick and the light does not pass through. Puncture of the tumor with an aspirating needle is always a safe diagnostic step. The puncture never does harm and often clears up a diagnosis as to the character of the fluid or its absence, and after the fluid is withdrawn the testicle itself is easily palpated.

In recent years, laboratory tests have been of great benefit in assisting a diagnosis of syphilis or tuberculosis. A positive Wassermann and the presence of a large, smooth, oval tumor in the testicle speak infallibly for syphilitic enlargement of the testicle, while a positive von Pirquet reaction and the presence of a small, hard nodule in the epididymis are strongly indicative of a tuberculous epididymitis.

When, in spite of the methodical examination just described, doubt still exists, the patient should be prepared and etherized, and a free incision made over the tumor. When the enlarged testicle is brought out of the wound, the diagnosis can be made and the growth can be dealt with as occasion requires.

In the present case, having failed to make a diagnosis by the ordinary means just described, we cut down upon the testicle and bring it out for inspection and palpation.

Operation. On incising the scrotum, we bring out a large oval mass, which is the enlargement of the body of the testicle itself. I open the sac of the

tunica vaginalis, but only a dram of fluid is present. I now ligate the spermatic cord, divide it, and remove the testicle. On splitting the testicle, I find it to be composed of a large fleshy mass, which from its gross appearance is unquestionably a sarcoma. We will send it to the pathologist, who, I confidently expect, will confirm the diagnosis.

We are fortunate in having had three typical cases of disease of the epididymis and testicle which have given me the opportunity to describe the methods of diagnosis and at the same time to say something of the treatment and prognosis.

32 SCHERMERHORN STREET.

THE RESULTS OF TRANSVESICAL PROSTATECTOMY.

*A Report of the Present Condition in a Series of Thirty Consecutive Prostatectomies Without Death.**

BY PAUL M. PILCHER, A. M., M. D.,
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Why do so many general practitioners hesitate to recommend operative relief to men suffering from prostatic hypertrophy when it can be shown that an overwhelming mortality within a relatively short

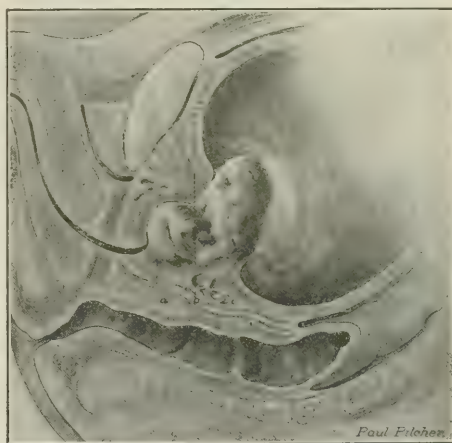


FIG. 1.—Shows in a general way the surgical problem which is presented—an enlarged prostate obstructing and distorting the urethra, the enlargement itself bulging into the bladder. The transvesical route makes removal of this prostate easier and safer for patient.

period faces the patient who takes up catheter life? I think this may be answered as follows:

1. General practitioners as a class have not yet been convinced that operation is preferable and safer than catheter life. 2. Many people, including physicians, have come to believe that it is normal for old men to have frequent urination or an irritable bladder.

What is the reason for advising early operative relief in cases of prostatic obstruction?

*From the Pilcher Clinic.

First, we know that in about twenty per cent. of the cases of obstructive prostatic disease cancer develops; second, because we can show a mortality of

What has prejudiced general practitioners against operative interference?

Undoubtedly the high mortality which for many years attended operations for removal of the pros-



FIG. 2.—Pathological condition of the bladder in an advanced case. Note the greatly thickened walls of the bladder, many calculi, enlarged and distorted prostatic urethra, etc. (Watson).

less than seven per cent. in the operative cases, and at the end of four years can show a mortality of less than ten per cent. opposed to a mortality of over fifty per cent. in cases not operated in.

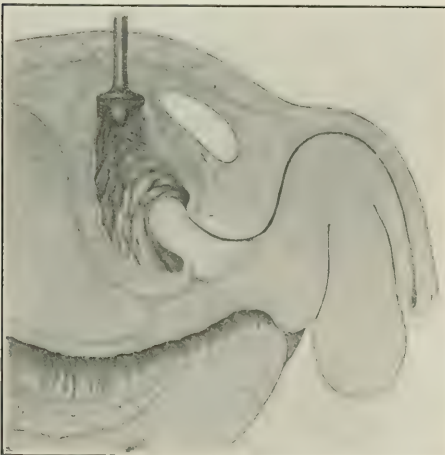


FIG. 3.—First step in operation—use of Pezzer catheter. Replacing the old drainage tube by a soft catheter with button end has been a source of great comfort to our patients and we have adopted it in all cases.



FIG. 4.—One type of enlarged prostate removed by suprapubic operation. Original specimen larger than illustration. Bilateral enlargement.

tate, a mortality which, in some cases at least, was due to too precipitate surgery.

What is the responsibility of the surgeon?

1. That relief be brought about with the least amount of risk to the patient. 2. That the end results shall be as perfect as possible, which means that there shall be no incontinence of urine after operation; no persistent urinary fistula; and that the patient shall be free from distressing bladder symptoms.

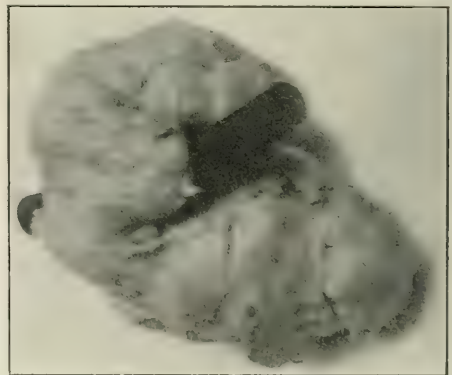


FIG. 5.—Smaller but different type of enlargement, with large median lobe which causes considerable obstruction.

In approaching this problem in our own work we first undertook to relieve all prostatic obstruction by means of the perineal operation. The perfected

(Fig. 1) technic in this work gave us very brilliant results in comparison with those which had been obtained in previous years. In a certain number of cases, however, there were unaccountable deaths,

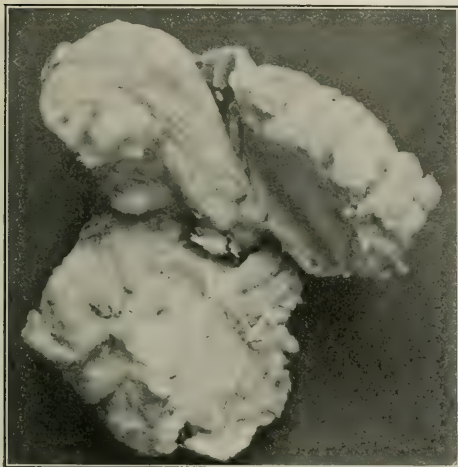


FIG. 6.—A specimen removed at operation, showing lobes separated, median lobe projecting between two lateral lobes.

protracted convalescence, and numerous unpleasant sequelae, which made us feel that the technic could be improved upon.

Suprapubic enucleation was then adopted, and when completed at one operation, it was found that the number of unaccountable deaths was not diminished, but that convalescence was more comfortable and the morbidity was lessened.

After the introduction of the more improved tests for determining the functional capacity of the kidney in a given case, it became quite apparent that there were two factors of great importance which influenced the recovery of these aged patients. It was early determined that the kidney was greatly affected by the urinary obstruction which caused residual urine in the bladder. This affected the kidney in a peculiar way. It stimulated it to a marked oversecretion of urine of low specific gravity, and created at the same time a false index of renal efficiency. Experience showed that when the obstruction was removed and the residual urine was suddenly relieved, a most profound disturbance of the renal function took place, characterized by marked diminution in the amount of urine secreted, marked congestion of the kidney, shown clinically by the great increase in the amount of albumin in the urine, often the presence of acute hemorrhages from the kidney, and in addition a rapid lowering of the index of renal efficiency. This may best be shown by Charts I, II, and III, which show the effect of the sudden relief of residual urine in advanced cases. In studying these cases, it was found that regularly on the second to the fifth day this marked period of depression took place. Therefore, it was decided that it was much safer simply to relieve the

obstruction to the outflow of urine as a preliminary step to the prostatectomy.

Inasmuch as we found that the prostate could be more quickly and perfectly removed by the suprapubic route, the first step in the operation took the form of a preliminary cystotomy under local anesthesia. It was also found that urinary extravasation and the infection of the space of Retzius after suprapubic operations on the bladder, were due to improper technic and could be entirely avoided by using the Pezzer catheter for drainage of the bladder after cystotomy (Fig. 3), closing the wound in layers around the catheter. The result of this improvement in technic, even in the presence of infection of the bladder, resulted as a rule in primary union around the catheter without any leakage of urine whatever. This was a very important step in advance, for with the proper healing of this pre-



FIG. 7.—Showing various portions of enucleated prostate with small crescent shaped stone marked A. This caused complete obstruction for three years.

liminary wound, we had provided a track leading to the prostate which was already fortified by the protection of granulation tissue, somewhat immune to infection, and an avenue through which, in the majority of cases, the prostate might be removed

RESULTS OF TRANSVESICAL PROSTATECTOMY—TABULATION OF END RESULTS.

No.	Date.	Age.	General condition.	Result.	Condition after six months.	Condition after one year.	Condition after two years.
I	July, 1911	65 yrs.	Out of business one year on account of bladder. Catheter necessary every four hours. Residual urine 45 ounces. General condition fair. Symptoms ten years. Painful, very frequent urination. Complete retention of urine. A poorly nourished Russian Jew. Cystitis.	Complete recovery. Full control of urine.	Bladder condition perfect.	No bladder symptoms.	Works every day. Bladder condition perfect. Three years. No report.
II	July, 1911	75 yrs.	Ill a number of years. Pain and frequency of urination. Increased pain during past month. General condition poor. General condition improved emaciation and general weakness. Complication, carcinoma of gallbladder.	Complete recovery. Full control of urine.	Died, March 25, 1912, of carcinoma of gallbladder and liver.		
III	Nov., 1911	75 yrs.	Symptoms eight years. Complete retention five years. In ten years, very frequent urination, vesical calculus. General condition poor. Three years previously perineal prostatectomy. Result imperfect. Frequency of urination. Six ounces residual. Sentile. General condition fair.	Complete recovery. Full control of urine.	Some increasing irritation in the bladder.	Suprapubic cystostomy for vesical calculus.	No report.
IV	Oct., 1911	74 yrs.	Complete retention for three years. Vesical calculus. Renal calculus. General condition good. Symptoms ten years. Blood in urine. Involuntary urination at night. Residual urine 12 ounces. General condition good.	Complete recovery. Full control of urine.	Good.	Good.	Has never had to use catheter. Free from bladder symptoms. Result perfect. Three years. Perfect. Three years.
V	Dec., 1911	68 yrs.	Frequency of urination several years. Involuntary urination at night. Residual urine 12 ounces. General condition poor. Complication, carcinoma of os uteri. Acutely ill.	Complete recovery. Full control of urine.	Perfect.	Perfect.	Urinary catheter at night. Working every day. Urination perfectly natural. Three years.
VI	Dec., 1911	64 yrs.	Very distressing, urinating every few minutes. Occasional retention. Marked cystitis. Residual urine 20 ounces.	Complete recovery. Full control of urine.	Operation for hernia and sarcoma in inguinal region.	Operation for hernia and sarcoma in inguinal region.	Urinary catheter at night. Working every day. Urination perfectly natural. Three years.
VII	Jan., 1912	60 yrs.	Very distressing, urinating every few minutes. Occasional retention. Marked cystitis. Residual urine 20 ounces.	Complete recovery. Full control of urine.	Operation for hernia and sarcoma in inguinal region.	Operation for hernia and sarcoma in inguinal region.	Urinary catheter at night. Working every day. Urination perfectly natural. Three years.
VIII	Jan., 1912	68 yrs.	Very distressing, urinating every few minutes. Occasional retention. Marked cystitis. Residual urine 20 ounces.	Complete recovery. Full control of urine.	Operation for hernia and sarcoma in inguinal region.	Operation for hernia and sarcoma in inguinal region.	Urinary catheter at night. Working every day. Urination perfectly natural. Three years.
IX	Jan., 1912	72 yrs.	Very distressing, urinating every few minutes. Occasional retention. Marked cystitis. Residual urine 20 ounces.	Complete recovery. Full control of urine.	Operation for hernia and sarcoma in inguinal region.	Operation for hernia and sarcoma in inguinal region.	Urinary catheter at night. Working every day. Urination perfectly natural. Three years.
X	May, 1912	67 yrs.	Very distressing, urinating every few minutes. Occasional retention. Marked cystitis. Residual urine 20 ounces.	Complete recovery. Full control of urine.	Operation for hernia and sarcoma in inguinal region.	Operation for hernia and sarcoma in inguinal region.	Urinary catheter at night. Working every day. Urination perfectly natural. Three years.
XI	May, 1912	68 yrs.	Passed many small calculi. Much frequency of urination. Drilling of urine at night. General physical condition fair. Residual urine 30 ounces. Involuntary urination at night. Complete relief of residual urine.	Complete recovery. Full control of urine.	Perfect.	Reports "Never had a minute's trouble since operation."	April, 1914, general health improved. Urination at intervals of one to three hours. Had pain before operation. Is relieved now. Full control of urine. Result perfect. Full control of urine. No bladder symptoms.
XII	July, 1912	68 yrs.	Passed many small calculi. Much frequency of urination. Drilling of urine at night. General physical condition fair. Residual urine 30 ounces. Involuntary urination at night. Complete relief of residual urine.	About three weeks after operation secondary hemorrhage occurred. Blood and clots discharged by urinary catheter. Another secondary hemorrhage occurred by tampon. One week later secondary hemorrhage occurred. Patient in extreme shock. Operation: bladder widely opened down to the urethral opening. Bleeding controlled. Some clots removed. Application of bladder failed of coagulation. Long, protracted convalescence.	General condition good. Suprapubic fistula persists.	Suprapubic fistula opens for a time, then closes for from six to eight days. Urination in wound when closed, chief when open. Urinates two to three times at night. No leakage from fistula when closed. Urination perfect. Bridge every day.	General health good. Aged 68 years, in active business with good force. Urinates twice at night, five or six times daily. Burning pain not when lying down. First drops of urine stained with blood. For several days an opened osm for a few days. Has most comfort when fistula is open.
XIII	July, 1912	75 yrs.	Frequency of urination many years. One ounce of retention of urine. General condition good.	Complete recovery. Full control of urine.	Perfect. Urinating normal.	Fine physical condition. Urinating normally.	In active business. Urinating normally, once or twice at night. No bladder symptoms since operation. October 21, 1913, normal in every way.
XIV	Oct., 1912	67 yrs.	Symptoms for ten years. Continual dribbling of urine for a long time up to four months ago. General physical condition good.	Complete recovery. Full control of urine.	Normal.	Urinary functions normal.	Physical health fair. Works in active business. Urinates four times at night, ten times during day. States that bladder bothers him sometimes.
XV	Dec., 1912	67 yrs.	Symptoms a number of years. Urination every half hour during night. Mucous cystitis. General condition fair complicated by vesical calculi.	Complete recovery. Full control of urine.	Good.	Good.	Normal.
XVI	Mar., 1913	73 yrs.	Nocturnal frequency. Complete retention for two weeks. Relieved. General condition very good.	Complete recovery. Full control of urine. Four days after operation.	Perfect. Urinary functions normal.	Urinary functions normal. Physical condition excellent.	Normal.

No.	Date.	Age.	General condition.	Result.	Condition after six months.	Condition after one year.	Condition after 1½ years.
XVII	June, 1913	64 yrs.	Bladder symptoms twelve years. Acute retention eight years ago. Pain and tenderness passes urine very half hour. General condition fair. (Complication, vesical calculi and epithelioma.)	Complete recovery. Full control of urine.	Urinating once or twice at night. Complete control.	Eleven months. In good physical condition. Urinates once at night. Otherwise urinary functions normal.	Normal.
XVIII	May, 1913	66 yrs.	Symptoms for some years. Acute retention two years previously. Increasing frequency during past year. Occasional dribbling, incontinence, and blood in urine.	For some weeks after first operation marked uremia. Gradual recovery. Second operation. Complete recovery. Full control of urine.	Normal.	Ten months after operation condition of urinary organs quite normal.	Normal.
XIX	July, 1913	82 yrs.	Symptoms ten years. Two years dependent upon catheter. Twelve ounces residual urine. Complicated with interstitial nephritis, general hernia, recurrent epididymitis. General condition very low. Operation refused by family.	Complete recovery. Full control of urine.	Normal urination.	Normal urination.	Normal.
XX	Oct., 1913	65 yrs.	Severe history. Now urinates every 15 to 20 minutes. Severe pain during urination. Acute retention with hemorrhage into the bladder. Emergency operation. General condition very low. Arteriosclerosis.	Complete recovery. Full control of urine.	Reports condition perfect. Urinates every four hours. Twice at night.	At eight months complains of pain in region of left kidney. Some pus, some blood, and crystals in urine. Has cleared up mostly under local treatment, and at present condition is good.	
XXI	Oct., 1913	62 yrs.	Symptoms for a number of years, averaging every hour at night. Residual six ounces. General condition fair.	Complete recovery. Full control of urine.	Urinary periods normal.	Report of health at ten months is good. Urinates at night four or five times. Says a "thick white" urine passes. Water. Has gained twenty pounds in weight. At ten months, postoperative urination normal.	
XXII	Oct., 1913	65 yrs.	Pyuria. Daily frequency every one-half to one hour at night every one to two hours during day. General condition fair.	Complete recovery. Full control of urine.	Perfect.	Full control.	
XXIII	Nov., 1913	70 yrs.	Prostatic symptoms two years. Occasional catheter. Occasionally complete retention. Hematuria three weeks.	Complete recovery. Full control of urine.	General condition very satisfactory. Urinates once or twice at night. Has resumed active business.	Full control.	
XXIV	Jan., 1914	71 yrs.	Symptoms two years. Urination seven to eight times at night, very frequently during the day. Pain after urinating and some bleeding. General condition fair.	Complete recovery. Full control of urine.	Up to present time has no urinary disturbance. Some dribbling during day. Desires to urinate when standing long.	Full control.	
XXV	Feb., 1914	65 yrs.	Prostatic history for over one year. Increasing frequency at night and nocturnal incontinence. Residual six ounces. General condition fair.	Complete recovery. Full control of urine.	Condition satisfactory. Normal urinary control.	Full control.	
XXVI	Feb., 1914	63 yrs.	Secondary hemorrhage ten days after operation controlled by packing. Urinates every one to two hours. Never complete retention. General condition good.	Complete recovery. Full control of urine.	Complete urinary control and normal functions.	Full control.	
XXVII	Feb., 1914	60 yrs.	Increasing frequency of urination. Every half hour. History of prostatic trouble three years. Now complete retention with very marked distention of bladder.	Complete recovery. Full control of urine.	Perfectly normal.	Full control.	
XXVIII	Jan., 1914	66 yrs.	Increasing frequency of urination. Enormous swelling of both legs. Edema of prepuce and penis. Enormous distention of bladder, cardiac insufficiency. Entered in extremely critical condition. History of prostatic trouble completely for 48 hours account of shock. Gradually improved. Passed over 300 ounces of urine in 24 hours when back pressure was relieved. Urination continued for days. Chronic interstitial nephritis.	Complete recovery. Full control of urine.	Urinary condition perfect. Some cystitis still present.	Full control.	
XXIX	Mar., 1914	70 yrs.	Symptoms for a number of years. Increasing frequency, dribbling, urinary incontinence, and nocturnal voiding. General condition poor, delirium at night. Arteriosclerosis.	Complete recovery. Full urinary control.	Good. Has resumed business.		
XXX	Apr. 10, '14	70 yrs.	For four years constantly slave of bladder. Increasing frequency of urination. Enormous amount of blood and pus in urine. Bladder wall markedly infiltrated. Patient in almost moribund condition. Interval of six weeks between operations.	Complete recovery. Full urinary control.	Normal urination. Has resumed business.		

without the further use of cutting instruments. Furthermore, we found that the suprapubic wounds in these two stage operations healed without the usual sloughing and long continued fistula formation, encrusted with phosphatic salts (Fig. 2).

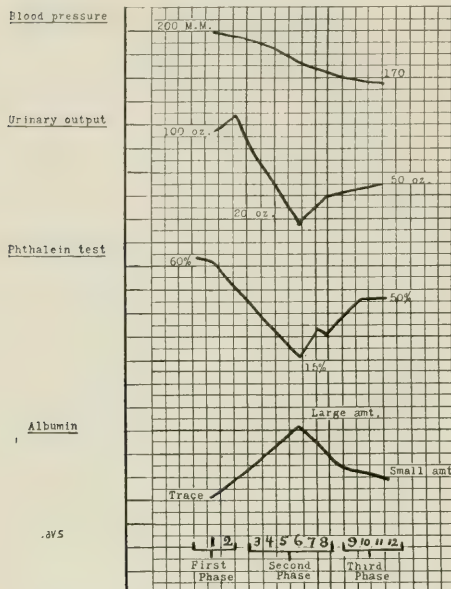


CHART I.—Chart showing the three phases following suprapubic cystostomy in an advanced case of obstruction due to prostatic hypertrophy.

First phase: Includes the first and second day, the suprapubic cystostomy being done on the first day. If one would observe this chart excluding the following days, the conditions would seem to be favorable for any operative encroachment. If taken alone, this surely would seem to indicate a safe surgical risk.

Second phase: This phase extends over the third, fourth, fifth and sixth days after a suprapubic cystostomy. It shows a very marked decrease in urinary output during that time, a large increase in the amount of albumin present, but most important of all the drop in functional capacity of the kidney from 60 to 15 per cent.

Third phase: Showing the reaction and the recovery of the kidney after ten days. Blood pressure 170, urinary output averaging 50, phthalein test 50 per cent., and a smaller amount of albumin present in the urine. Comparing this phase with the first phase we find a lower blood pressure, a normal urinary secretion with an increased specific gravity, a lowered functional capacity of the kidney, as attested by a phenolphthalein test, and a larger amount of albumin present in the urine than during the first phase. When, however, the reaction from this phase following enucleation of the prostate is considered, what a much better combination of circumstances exist in this phase than in the first phase. Following prostatectomy, the blood pressure falls still lower, owing to the loss of blood. The urinary output decreases most markedly during the first twenty-four hours, but recovers rapidly until, on the third day, it is practically normal. The phthalein test shows lessened reaction, but it never drops as low as was found in the second phase after suprapubic cystostomy, so that 50 per cent., according to the phthalein test in the third phase shows a very much greater relative functional capacity than 60 per cent. in the first phase. This we consider a point of very great importance. The amount of albumin following the operation is an unknown quantity.

Each case, then, in which the retention of urine is relieved, passes through three phases. The first phase lasts from twenty-four to forty-eight hours. The second phase, which is the phase of greatest peril to the patient, lasts from two days to many weeks, on the average about one week. It is our belief that the prostate should not be removed until after this phase is passed.

Basing our treatment of these patients on these observations, we are able to report a series of thirty

consecutive cases operated in without a death. The detailed condition of the patient at the time of operation, his age, the immediate results of the operation, the patient's condition at the end of six months, one year, and two years, is given in detail in the foregoing tabulation of cases. Since this table was made up, about a year has passed and we have the later report in these cases: At the end of three years in nine cases, between one and two years in twelve cases, and the condition at the end of one year in eight cases. We find our results to be as follows:

In these thirty cases there was no immediate operative mortality. Case III ended fatally five months after the operation from cancer of the gall-bladder. Case IX terminated fatally ten months after the operation from cancer of the cecum.

With the exception of these two, all the patients were in good health at the end of one year, with the exceptions that in Case IV another vesical calculus developed and a suprapubic cystostomy was successfully done for the removal of the calculus with recovery of the patient; and in Case XII there was a recurrent suprapubic fistula resulting from the extensive operative interference necessary after removal of the prostate for the control of recurrent secondary hemorrhages. In all of these cases after operation complete urinary control was secured.

As to the presence or absence of any bladder symptoms after operation, twenty-three patients are recorded as normal. A patient who gets up once at

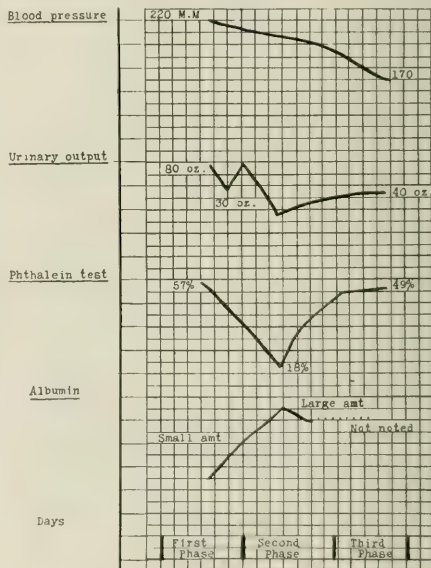


CHART II.—Chart of Case 1. Showing the three phases in a patient eighty-two years of age. Note the marked difference between the three phases—especially the drop from 57 per cent. to 18 per cent. in the renal efficiency and the large increase in amount of albumin. Prostate enucleated during third phase. Recovery.

night after prostatectomy would be included in the normal class. In two cases there was slight irritation when urinating, or when the patient became very tired. In two cases there was marked bladder

irritability. One was found to be due to recurrent stone, and the second to an unhealed suprapubic fistula. In two cases there was some frequency of urination, so that the patient needed to empty the bladder three times at night and every hour and a half during the day. Otherwise there were no symptoms.

In this report we have presented a series of thirty consecutive cases without an operative death. They were all operated in by the transvesical route, and many of them were in the advanced stages of chronic prostatism.

In addition, we present a report of the condition of these patients at the present day in periods vary-

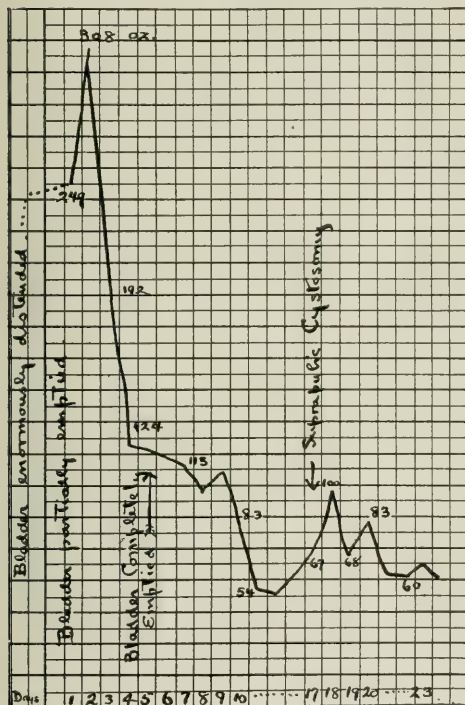


CHART III.—Chart showing remarkable first phase of chronic prostatism. Bladder distended above umbilicus. Patient in collapse. Partial decompression of kidney developed urinary output of 308 ounces of urine in twenty-four hours. The second phase showed a gradual drop in urinary output with a very marked increase in the amount of albumin. Suprapubic cystostomy on twelfth day showed very slight reaction from kidney. For the first twelve days urine was removed by catheter.

ing from three years to a little less than a year. Only two of the patients are known to have died. In two of the other cases no report is at present available, although one of the patients was known to be well six months after the operation, and the other patient was heard from a year and a half after the original operation, having acquired a vesical calculus for which he was successfully operated upon.

145 GATES AVENUE.

A STUDY OF TWILIGHT SLEEP*

With a Critical Analysis of the Cases at the Long Island College Hospital.

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So much publicity has been given in the popular periodicals to the discussion of the advantages and disadvantages of painless labor, that it seems that the time has arrived for the profession to formulate some public statement of what may be expected from scopolamine amnesia. The questions which obstetricians will have to settle are, first; What is really meant by "twilight sleep"; second, whether twilight sleep, as it is called, has any place in rational obstetrics; third, can anything be gained for the patient by its use, and if so, does the advantage gained compensate for the possible dangers to the child?

Dämmerschlaf, as it is called by the Freiburg school, is the application of partial narcosis to labor produced by the administration of morphine and scopolamine. The narcosis is so light as to eliminate only the memory of subjective pain, without interference with the uterine contractions. Its previous employment in America has been more or less sporadic and unsuccessful; this was due, we believe, to two causes: 1. We have attempted to follow routine doses with unstable preparations of the drug. We have failed to individualize the patient, consequently, the children were narcotized or asphyxiated, the labors were prolonged, and forceps became a frequent necessity. Delirium was common and third stage inertia with hemorrhage no infrequent complication. The children and women were overmorphinized.

In Gauss's latest report, he records 4,111 cases of labor in which morphine and scopolamine have been employed with a lower maternal and fetal mortality than has been secured by ordinary methods in any clinic in Europe. These results have been obtained, first, by individualizing the patient and minimizing the dose; second, by giving each woman a full test of labor without reducing her physical strength, by subjecting her to the nerve racking pain of prolonged labor; third, by limiting the number of vaginal examinations, and following the course of the labor, by abdominal and rectal palpation, hence, all operative procedures were done in dilated passages, and trauma to the soft parts and infection have been reduced to a minimum.

It is not my purpose in this brief paper to go into the chemistry and physiological action of scopolamine, but rather to give a brief statement of some of the advantages of painless labor, its dangers, its indications and limitations, and a description of the technic employed, together with a critical summary of our experience from its employment at the Long Island College Hospital.

Statistical studies, both here and abroad, show us that it is possible to produce amnesia and partial analgesia in about ninety per cent. of the cases in

*Read, by invitation, before the Passaic County Medical Society, December 8, 1914, and the Philadelphia Obstetrical Society, December 10, 1914.

which morphine and scopolamine are used; hence we feel that a woman is entitled to a painless labor if she can get it without increasing her own risks or those of the unborn child. Suffering exhausts more than physical effort. Our present day women are poor obstetrical risks; the pace at which we live, both commercially and socially, has left a definite impression on our women and has changed the character of labor. Primary inertia in the first stage, before complete obliteration and dilatation of the cervix, is no uncommon complication; while the textbooks attribute this to many causes, in our experience, after excluding hard part obstruction or relative obstruction from malposition of the fetus, *nervous exhaustion* plays the most important role. Long before scopolamine analgesia was introduced, it was our practice, after excluding obstructive causes and investigating the condition of the baby, to give these patients one quarter of a grain of morphine hypodermically (with or without atropine), which would ease the pain, relieve the restlessness, and allow the woman to doze between the uterine contractions, instead of retarding labor; this use of morphine seemed to expedite it, as dilatation was more rapidly and painlessly accomplished. There is probably no obstetrician of any experience who will not vouch for the truth of this statement. Scopolamine and morphine does all of this, without in any way inhibiting the uterine contractions, and leaves the patient without memory of her painful sensations; thus the first stage may be completed without nervous or physical effort. This is positively shown to be the case clinically in numberless dry labors. Neither our experience, nor the statistical reports from Krönig and Gauss and Pankow tend to show that the maternal mortality or morbidity is in any way increased by the use of scopolamine; we feel rather that it is decreased owing to the greater care and watchfulness given these women at their confinement. We follow and record the pulse, respiration, color, condition of the pupils, degree of amnesia, and the character and length of the uterine contractions, with such care that any change is at once apparent.

The progress and mechanism of labor is studied by abdominal and rectal palpation, hence we practically eliminate vaginal examination and thus avoid a potent cause of sepsis. The first stage is actually shortened and the cervical tissues are so relaxed by the analgesic effect of these drugs that traumatism of the cervical ring is reduced. We have repeatedly exposed the cervixes in these women twenty-four and forty-eight hours after labor and found the external os round and ecchymotic, but not lacerated, and this even in dry labors.

Third stage inertia is not increased by the use of scopolamine, and hemorrhage or difficulty in the expulsion of the placenta has not been noted. We believe and teach that the third stage has three physiological acts: First, the separation of the placenta, which is accomplished by the formation of a retro-placental blood clot, due to the retraction of the placental site, tearing of the connecting vessels, with the formation of the clot, and the uterine contractions; second, the expulsion of the placenta by the uterine contraction; and, finally, retraction of the uterus by a readjustment of the uterine muscle

fibres, which effectually closes the sinuses. Manipulation of the uterus disturbs this mechanism and partially separates the placenta; hemorrhage often results, not from any other cause, except from interference with a perfectly normal and physiological process. My interns formerly, even before the days of scopolamine, had many post partum hemorrhages, but since we have taught them that nature is capable of separating a placenta and that the Credé method was devised to express the *separated placenta* and not to separate an attached placenta, hemorrhage has become a rarity.

We no longer ask our patients to submit to a surgical operation without ether or gas. Many of us use ether or chloroform as a routine during the perineal stage in ordinary labor; we likewise narcotize the woman for a forceps delivery or a primary repair of the pelvic soft parts. Why not extend this comfort to her throughout labor by producing amnesia and analgesia with safe doses of morphine and scopolamine, which do not, if judiciously used, affect uterine contractions once these are established.

It may be said that labor is a normal and physiological process, but one would not think so after twenty odd years of consultation obstetrics in Brooklyn and Manhattan. Over fifty per cent. of all of our gynecology results from badly conducted physiological labor; poor diagnosis in labor is more frequent than in any department of medicine and surgery, except perhaps in cancer. The practitioner has not made the progress in the art of obstetric diagnosis and procedure that he has in the other branches, or he is blinded by the dictum that it is all a normal process and he needs no special preparation.

Many of us seem to forget that the cervix must be open before the child can pass through, others delude themselves into the idea that they can artificially dilate the soft parts as perfectly as do Nature's processes, and few of us give Nature sufficient time to prepare the way. Dead and mutilated babies, torn and prolapsed organs, with resulting morbidity from trauma and infection, are some of the causes which have produced this public demand for adoption of the Freiburg method.

We have educated the public how to prevent disease; they are going to educate us how to prevent many of the disasters of childbirth by insisting on better ante partum and inter partum care; do they not even now insist on routine ante partum examination of the pelvis, the urine, the blood pressure, etc.?

Painless labor by partial narcosis with scopolamine and morphine is an assured fact, and when used in properly selected cases, where the fetal and pelvic relations are normal or approximately normal, permits Nature to take time to prepare perfectly the cervix, vagina, and vulvar orifice for the passage of the fetus, without producing physical or muscular fatigue.

It is easier to dilate the sphincter ani under anesthesia than with the patient conscious, so it is easier to dilate the cervix when the pain of this dilatation is not felt by the patient, than when the circular muscle is in spasm, particularly when the dilatation is accomplished by the forces intended for this purpose.

The advantages, therefore, of painless labor, are less nervous shock, less muscular effort, and easier and more prompt dilatation. Our observation proves that scopolamine and morphine actually shorten the first stage of a primiparous labor, by more promptly overcoming the soft part obstruction. This is not so, however, with the second stage, which may be prolonged beyond safe limits, especially if too much morphine has been used.

Scopolamine-morphine anesthesia is not without danger, neither is the production of narcosis with ether free from accident or complication, yet, in proper hands these dangers can be and are minimized. The mother may be particularly susceptible to either scopolamine or morphine, the former causing delirium, the latter coma; the respiration may become arrhythmic and reduced to five or six a minute. The kidney secretion may be diminished or anuria may develop, labor may be prolonged, especially the second stage, uterine atony is possible, and post partum hemorrhage has been charged to the method by some American observers.

In our clinic we have found that all of the above mentioned dangers are exaggerated and are the fault of the doses, that they can be anticipated and prevented by intelligent administration, by the use of the minimum dose to produce sleep, the individualization of the patient, and the very free exhibition of water throughout the narcosis. It may even be justifiable in cases with kidney lesions to give saline solution by hypodermoclysis or colonic irrigation during the labor, and thus dilute the toxic effect of the drug on the kidneys.

It has been averred by the critics of this method, that the child is apt to be asphyxiated and narcotized; this again, is not the fault of the method, but of the dose. The child does participate to some extent in the twilight sleep. Many of the children suffer from oligopnea for several minutes, and it is common for the child not to cry for a minute or two after birth, though the fetal heart may show no disturbance in rate or rhythm. There is, however, no cyanosis, unless the doses have been too large, given at too frequent intervals or too late in labor, or the second stage has been allowed to continue too long.

The child, after stretching itself as if awaking from a restful and peaceful sleep, cries as lustily as the ordinary newborn infant. As the patient is wholly unaware of the progress of labor, even during the perineal stage, it is not uncommon for the fetus to be delivered unannounced, as the change in the character of the woman's pains may not be noted by the attendant unless the vulva is exposed.

From our observations both here and abroad, we are convinced that there is no reason why *Dämmer Schlaf* should not be caused in all women who show the physical signs of active labor, provided that the woman is under continuous and intelligent observation. It is distinctly a first stage procedure and should not be begun if the labor is too far advanced; thus the doses required will necessarily be much greater.

This analgesia is particularly indicated in nervous women of the physically unfit type in their first labor, for it is in this type of women that labor has most often, in ordinary practice, to be terminated

artificially, owing to the physical exhaustion so common at the end of the first stage, before cervical dilatation is complete, or in the second stage, when no more force can be brought upon the uterus by the abdominal muscles. The usual obstetrical interference by forceps in unprepared soft parts, results in a permanent morbidity and is the largest contributing cause to our collection of chronic invalids.

It is just in this class, the physically unfit, that scopolamine-morphine will give the best results, for by its use we are able to attain full dilatation of the cervix by the operation of the physiological factors, i. e., the bag of waters and the force of the uterine contractions, before the patient begins to show signs of physical tire. In dry labors, the exquisite pain which is produced by the pressure of the presenting part on the sensitive congested cervix, is relieved and the cervical ring is relaxed. The presenting part is therefore driven through the pelvis and well into the vagina, and low forceps in a dilated passage is the most serious intervention to which the woman is subjected.

From our experience, which is wholly in accord with that of other unbiased American and foreign investigators, we are convinced that scopolamine-morphine analgesia used in conjunction with the colpeurynter, materially shortens the dilatation stage in dry labors, when the uterine contractions are active.

Borderline disproportions also, will offer another indication for its trial, for all primiparæ with borderline line contractions should be given a test of labor before instituting operative measures. This means that the cervix must be dilated, the membranes ruptured, and that the uterine contractions, aided by proper posture, be given a chance to drive the presenting part into the pelvis. This all takes time and effective labor pains. These patients are in need of rest between contractions, because having labor pain is work, and work exhausts. Under scopolamine analgesia the woman may be carried for hours without showing any of the classical signs of exhaustion in the character and rate of the pulse, or in the character of the labor pains, and if operative delivery is indicated in the interests of either mother or child, it may be accomplished with less shock and with less general anesthesia.

The strain of labor in cardiac cases is greatly reduced by carrying the woman through the first stage in the twilight. Apprehension, restlessness, and physical pain are all ameliorated by scopolamine. The same may be said of labor in the presence of tuberculosis.

In our private and public service at Long Island College Hospital, we have been using scopolamine and morphine in all labors which were not too far advanced upon admission, unless the patient refuses the treatment, and have found, after carefully analyzing our cases and results, that our best success has been attained by observing some of the following suggestions:

1. The patient should be definitely in labor, having appreciable uterine contractions, recurring at regular intervals, preferably every four or five minutes, before the first injection is given. In multiparæ a small initial dose may be given at the very beginning of labor. The woman should be in bed,

in a well ventilated, darkened room, removed from all noise or excitement. It is unnecessary for her to wear blue glasses and have her ears plugged, yet by observing this, both amnesia and analgesia may be obtained with much smaller doses.

2. Careful observations must be made and should be recorded, of the pulse, respiration, condition of the pupils, and the frequency and character of the uterine contractions. It is unnecessary to disturb the patient for memory tests, except to ask her how many hypodermic injections she has had, as observation will show how deeply she is under the influence of the drug. Ordinarily the woman will give outward evidence of apparently acute suffering during the pain, but will immediately lapse into a peaceful sleep at its cessation.

3. The woman requires large quantities of water, but no food, throughout her labor. Water is best given just after the pains, and at the time the injections are made.

4. The progress of labor must be constantly watched by repeated abdominal or rectal examinations. It is well known that frequent vaginal examination invites *sepsis*. Private patients seldom have any vaginal examinations during labor: following the position of the shoulder as it descends and rotates inward toward the median line, is a good index of the progress of labor.

5. The fetal heart beats must be listened to and recorded every half hour, both in the interval between and during the pains. Arrhythmia or slowing or marked acceleration of the fetal pulse between pains is of bad prognostic significance, demands withholding the further use of the drugs, and prompt delivery by the most suitable route and method. Our personal experience has shown that when any of the foregoing changes in the fetal pulse have been noted, other factors rather than scopolamine have been the cause.

6. The solutions of the drugs must be absolutely pure. Hyoscine cannot be substituted for scopolamine; the American preparations have produced delirium, but the European proprietary compounds are no better than morphine.

7. The doses differ in each individual case, especially with the time of labor at which induction of the sleep is attempted. It is easier to induce sleep in a woman early in the first stage, than when she is near the end of her dilatation stage. The danger to the child also is increased when the sleep is primarily induced near the end of the first stage, as larger quantities of the drugs will be necessary to obtain a satisfactory degree of analgesia.

8. Intelligent employment of the method shortens the first stage; on the other hand, it may prolong the second. This should be guarded against, and if the perineal stage lasts over an hour in multiparæ, or two hours in primiparæ, delivery should be effected with the patient in the Schmitt posture (extreme flexion of the thighs on the abdomen), combined with expression of the fetus, or by low forceps.

An extensive use of pituitrin has convinced us of its dangers to the child after the head has passed out of the cervix and the uterus is moulded and firmly contracted down on the body of the fetus. Compression of, and separation of the placenta from the violent uterine contraction induced by pituitrin, has caused asphyxia too many times to be coinci-

dental. Pituitrin is often more dangerous than ergot, when used before the uterus is completely emptied.

9. The third stage is not influenced by small doses of scopolamine or morphine, and when properly used these drugs do not predispose to post partum hemorrhage. The placental stage should be managed so as to secure the separation and expulsion of the placenta and retraction of the uterus by the normal process; we do this in our clinic by placing a clamp on the cord, close to the vulvar orifice, and leaving the fundus absolutely alone. When separation occurs it is shown by a gush of blood from the vagina, expulsion of the cord, and rising of the fundus; the hand is then placed upon the fundus and the patient asked to bear down, when delivery is easily accomplished. Premature use of the Crêdè manipulation favors partial separation and hemorrhage from the placental site.

10. Low forceps, perineotomy, and primary suture of the pelvic floor injuries can all be done without further anesthesia, and the patient has no recollection of the procedure.

Two methods of administration have been introduced into this country, that of Siegel, who uses the drugs according to a definite schedule of doses, a method employed in third class patients in Freiburg with fair results, and that of Gauss, who individualizes the patient, grading the doses by the condition of amnesia obtained. In this plan, a single dose of morphine hydrochloride is given instead of repeated doses. Until we adopted the latter method, many of our babies showed some cyanosis.

The drugs as used at Freiburg come in ampoules, each containing one c. c. of the solution, the strength of which is as follows: Each ampoule contains respectively scopolamine hydrobromide (Straub) 0.0003 gram (grain 1/200), solution of morphine, 0.03 gram. According to the Siegel method, they are administered as follows: When the labor is definitely established, one and one half ampoule of each drug is given hypodermically as the initial dose; forty-five minutes later, one ampoule of scopolamine is administered alone; while one hour later, one half ampoule of each is given. The amnesia is maintained by repeating the scopolamine alone in one half ampoule doses every two hours. It is seldom necessary to repeat the morphine solution, though it may be used every third time, at six hour intervals, in a long labor. It is the morphine which has the effect on the child.

In the Gauss method an initial dose of morphine hydrochloride, grain one eighth to one sixth, with scopolamine hydrobromide (Straub) 0.0003 is used; the morphine is not repeated, but the scopolamine in doses of 0.0003 or 0.00015 gram is given at one, two, or four hour intervals, depending on the degree of amnesia and the clinical picture presented by the patient: each woman is individualized and carried along with the minimum dose. Smaller doses are required when the sleep is induced early in labor, larger doses when the first stage is well advanced before the initial dose is administered. It is in the latter class that there is most danger to the child, as the child gets the full effect of the drug.

In our cases at the Long Island College Hospital, seventy-three in my personal service and something over eighty in the service of my assistants, Doctor

Beach and Doctor Holden, at the College and Jewish and Methodist Hospitals, about 155 in all, there have been but three failures. One hundred and fifty patients had no recollection of their labor after the second injection; a few have had islands of memory, which occurred while we were substituting hyoscine for scopolamine; ten per cent. have shown some delirium, especially during the perineal stage. There has been no primary mortality among the babies; of the 155 children, three died before leaving the hospital (all more than ten days after delivery). Autopsy showed diaphragmatic hernia, with transposition of the viscera, premature ossification (microcephalus) atelectasis (Doctor Beach).

Four babies have shown signs of mild asphyxia and cyanosis. Two private patients of my own were deeply asphyxiated; one was born after a prolonged second stage, with the cord coiled around the neck and the child had inspired much mucus while the head was in the vagina, and had to be resuscitated by mouth to mouth insufflation; the other was asphyxiated as a result of pituitrin throwing the uterus into violent tonic spasm, and partially separating the placenta.

There has been no post partum hemorrhage. The placenta was delivered without difficulty in all by observing the general principles of the treatment referred to in the foregoing pages. There have been nine low forceps operations, a rather low average, considering that the majority of the patients were primiparæ. None of the women showed signs of fatigue or exhaustion the next day. The milk supply was not affected. Multiparæ have had some afterpains, which a full dose of ergot and the sitting posture quickly arrested.

Many of the women were allowed to get up on the third and fourth day, unless they had sustained severe perineal injury, and this has been minimized by the slow perineal stage. The involution, as far as our observation goes, is not influenced by the scopolamine; getting the patients up early has seemed to shorten the period of lochia rubra. All of the women have had much less nervous and muscular exhaustion than usual in the same class of patients after ordinary labor.

In conclusion, we are more and more impressed, as our experience increases, with the wide field of usefulness that scopolamine analgesia will cover in modern hospital obstetrics. We feel, however, that for the present at least, the method should be considered distinctly as one for the expert in a maternity hospital.

GYNECOLOGICAL OPERATIONS UPON THE INSANE.

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Schultz, of Jena, in 1880 formulated the following postulate, "No uterine catarrh, no chronic tear, no cicatrix of old parametritis should remain unknown within an institution for the insane."

We are indebted to Rohe for the first systematic report of the results of operative work on the genital organs of insane women. In 1893, he selected thirty-five insane women from the Maryland Hospital and found diseased tubes and ovaries

in twenty-five, beside many tears. He operated upon twenty-two of these women, not being able to obtain the consent of the relatives of the others. Two died as a result of operation. The others had immediate physical improvement, and in four the psychical improvement was immediate and permanent. The effect was negative in four and the remaining twelve were benefited to a marked extent.

The second series was reported by Hobbs, who in six years examined one thousand insane women. Two hundred and fifty-three of these cases were operated in, of which five were fatal from the operation. "The majority showed a surprising improvement in their psychical condition and in the course of time one hundred recovered from their psychoses."

Since that time many men have operated upon insane women with varying results. Many of the reports are valuable from a psychological standpoint, but the majority are worthless, as no attempt has been made to classify the psychoses found in the cases operated in. This is probably due to the fact that the operator was not familiar with psychiatry and depended upon his associates to select and tabulate his cases.

I have arbitrarily divided the various forms of insanity into two groups for reasons which will appear later: 1. Forms of insanity in which appear various degrees of deterioration or dementia, such as dementia præcox, general paresis, epilepsy, and senile dementia. 2. Forms of insanity in which dementia does not appear, as in manic depressive insanity and its allied forms, and paranoiac condition.

It is obvious that no amount of surgical work will benefit a patient suffering with one of the forms of insanity in which dementia is a marked characteristic and any operation performed in such a case is done only with the hope that it will improve the physical condition and perhaps make it easier to care for.

In the second class, those cases which suffer with some form of insanity characterized by no dementia, it was hoped that some of the cases would show improvement if lesions were removed from the pelvic cavity. We know that women who have pelvic lesions often have a well marked chain of nervous symptoms varying to such an extent that, if profound, the woman may be said to be insane, and it is the experience of every surgeon that the removal of the lesion is followed in many cases by disappearance of the nervous and mental symptoms. We also know that certain insane are more susceptible to external stimuli than normal individuals, therefore it is logical to believe that they are more susceptible to internal or somatic impulses, and that if the source of the pathological stimuli was removed, we might hope for improvement in the mental condition. It is known that coincident with mental improvement is a physical improvement, therefore it is logical to believe that any procedure that improves the physical condition has an *indirect* effect on the psychosis.

That briefly is the hypothesis upon which this work has been done, and the results will prove or disprove it. To accomplish this a large number of cases must be operated in and sufficient time allowed

for observation to come to any conclusion. This is not attempted at this time, but the results of operations on one hundred patients at the Kings Park State Hospital are sufficient to warrant an opinion.

I had hoped for results in the cases of manic depressive insanity and its allied forms, and in these I was particularly interested. Our desire was to learn if the removal of gynecological lesions in women who had manic depressive insanity would stop the attacks, shorten them, or increase the interval of normal state between attacks.

These one hundred cases were operated in between May 9, 1908, and March 4, 1911. The mental results were investigated by the resident staff during the summer of 1913. In the series there were fifty cases of dementia præcox, three of epilepsy, and one each of alcoholic psychosis and general paresis which belong in the first class. In this series there were twenty-six cases of manic depressive insanity, thirteen cases of paranoiac condition, and five of involution melancholia which belonged to the second class of cases and in which we might hope for some improvement; also one case of puerperal mania.

There was no mental improvement in any of the cases of the first class, bearing out the contention that when there is any degree of dementia present, operation can have no effect on the psychosis, either directly or indirectly.

In all there were seventeen cases out of the hundred which showed mental improvement attributed by the resident staff to the operative procedures. Of the twenty-six cases of manic depressive insanity operated in, thirteen were improved, or fifty per cent. This seems a very large percentage of improvement, and how much of this depends upon the correction of pelvic conditions time alone will tell, as the condition tends toward improvement naturally. It will be necessary to follow these cases through subsequent attacks, if any, to compare them with previous attacks, and also to compare the duration of periods of sanity between attacks. The matter is of sufficient interest and importance, however, to consider improvement following immediately after operation as due to that procedure, indirectly at least.

Of the thirteen cases of paranoia operated in, one improved (seven per cent.). This may be said to be due to the operation, as the condition does not usually improve naturally. Two out of five cases of involution melancholia improved, a percentage of forty. This may also be said to have been due to the operation. One case of puerperal psychosis improved after operation, was discharged as cured, but was readmitted a few months later as acute delirious mania and terminated fatally in a few days of exhaustion. One patient died the day following operation of pontine hemorrhage, giving us a mortality of one per cent.

While the number is not large, these cases are encouraging and would lead one to believe that something might be gained by correcting pelvic conditions in women who have certain forms of insanity. Certain it is that all patients with manic depressive insanity should have any pelvic lesion treated, and in this we agree with Taussig, who makes the following statement: "We have three

facts pointing to some sort of relationship between gynecological disease and manic depressive insanity: 1. The decidedly greater frequency of gynecological disease in this form of insanity. 2. The large proportion of chronic inflammatory conditions in this form of insanity. 3. The large percentage of mental recoveries after gynecological operations done on women having this form of insanity." The first two points may be explained by the fact that manic depressive insanity is characterized by remissions, during which the woman is at liberty and is often exposed to the etiological factors of pelvic disease. Taussig concludes that every woman with manic depressive insanity should be subjected to a gynecological examination and that when a definite lesion is found it should be corrected either by local or operative measures.

In this paper I have made no mention of the number of cases examined, of the number of pelvic lesions found, nor of the number of operations advised. Many patients who should be operated upon with a fair prospect of benefit are not treated, as the relatives pay no attention to requests and advice.

The results in this short series of cases are much the same as Broun's, whose statistics are the most complete and most trustworthy. Of the cases showing improvement after operation in Broun's series of 411 presented to the American Gynecological Society in 1908, seventy-eight per cent. were cases of depression. Of the cases in this series, seventy per cent. were depressed.

Following is a portion of a table taken from Taussig in which I have grouped together recoveries and improvement and have added the present series.

	cases	Mortality, Per cent.	Improvement, Per cent.
Rohe	34	.	56
Hobbs	173	2	68
Henry	28	3	57
Mayo	60	.	16
Broun	242	2	18
Taussig	17	.	17
Gibson	100	1	17

It will be seen that the first investigators made rather fantastic statements, while there is a remarkable similarity in the results of the last four.

I am indebted to Dr. William Austin Macy, superintendent of the Kings Park State Hospital, for the privilege to observe these cases, and to his associates of the resident staff for assisting at the operations and investigating the results.

176 STATE STREET.

FRACTURE OF THE LOWER END OF THE HUMERUS, WITH DISPLACEMENT.

By J. SHERMAN WIGHT, B. S., M. D.,

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It is important to remember the following facts. The lower extremity of the humerus is flattened and presents on the ulnar side the internal condyle projecting nearly as far down anteriorly as the trochlea; on the radial, the external condyle which is covered anteriorly by the capitellum. The internal condyle forms a groove posteriorly with the trochlea for the ulnar nerve. The inferior articular surface external to the internal condyle is subdi-

vided by a low ridge into the trochlea and capitellum. Above the trochlea on the anterior surface is the coronoid fossa, and on the posterior surface the



FIG. 1.—Fracture of lower end of humerus (Case 1). Position of fragment when first seen.

olecranon fossa. These fossæ are separated by a thin disc of bone. Above the capitellum on the anterior surface is a shallow fossa. The centres for



FIG. 2.—Case 1 after first attempt at reduction. Lane plate secured to posterior surface of external condyle and to shaft of humerus.

the external condyle, the trochlea, and the capitellum, unite to form an epiphysis, which fuses with the shaft at the seventeenth year. In fetal life diaphyseal ossification proceeds through cartilage. Diaphyseal cartilage is a phase in bone formation. In adult life regeneration of bone takes place either through a transition stage of cartilage or by direct division of bone cells into osteoblasts. The cartilage cell is formed and ossification is retarded where the conditions are less favorable. The osteoblasts are



FIG. 3.—Final result in Case 1; perfectly free joint.

formed directly from the bone cells, and ossification is hastened where the conditions are most favorable, as in fractures freshly made whose fragments are at once accurately coapted.

The diaphysis is largely compact, while the epiphysis is more cancellous bone and the diaphysis has greater osteogenetic power. If, after injury, the epiphysis formed callus to the same extent as the diaphysis, the movements of joints would be seriously interfered with in fractures through the epiphysis. The fractures that produce ankylosis from large masses of callus, involve the diaphyseal side of the bone such as T fractures. The reproduction of bone is strictly limited if an excision keeps within the epiphyseal line. A separation of the lower end of the humerus strictly through the epiphyseal

line is rare. The fracture line more commonly runs into the diaphysis. In order to prevent ankylosis of the joint, the fragments must be brought into the closest approximation with alignment and fixation of the fragments.

The case I have to present is an epiphyseal separation of the lower end of the humerus with a fracture line running into the diaphysis.

CASE I. W. P., aged twelve years, family history negative. He fractured his right humerus above the condyles in a fall during the summer of 1910; there was no displacement of the fragments and they united with perfect function of the joint.

About September 1, 1911, he fell on his left arm, fracturing the humerus at the elbow. An x ray picture was taken, an attempt made to reduce the deformity under an anesthetic, and an anterior right angle splint was applied.



FIG. 1. CASE II.

He came to my office, September 6, 1911. I took an x ray picture which showed the lower fragment displaced backward and overridden by the lower end of the upper fragment. All attempts at reduction were unsuccessful.

I sent him to the Long Island College Hospital and prepared his arm for operation, September 13, 1911. An incision was made along the back of the elbow and carried down to the bone, the tissues were separated from the bone on either side, the ulnar nerve lifted from its groove, a chisel was placed between the fragments, and the proximal fragment was raised and reduction effected. On account of obliquity of the fracture line, which ran from above downward and outward, the fragments would not remain in coaptation, so a Lane plate was secured to the posterior surface of the external condyle and the other end was secured to the shaft

of the humerus, as shown in Fig. 2. The wound was closed and the arm put in a right angle splint. The boy left the hospital in three days and came to my office. At the end of two weeks the plate was removed under a local anesthetic. At the end of three and a half weeks, the splint was removed and passive motion was started. Massage and passive motion were continued until the middle of November, then there was some slight ankylosis of the joint, and the boy was given an anesthetic in the office and the arm fully extended. Passive motion was continued until the end of November, when he was discharged with a perfectly free elbow joint, shown in Fig. 3.

It is not always necessary to use a plate after reducing this fracture with the open method, as will be seen from the following case:

CASE II. E. S., aged eight years, fell and broke her elbow. The x ray picture (Fig. 4) shows the displacement. This was irreducible, except by the open method. There was very little obliquity to the fracture plane, which ran nearly perpendicular to the long axis of the humerus. The fragments remained in alignment, the wound was closed without plating, and the arm recovered.

CONCLUSIONS.

The absence of an articular surface on the back of the external condyle makes this available for anchoring a very small distal fragment without damaging an articular surface.

In all cases of fracture at the joint, it is important to get the closest approximation of the fragments so as to prevent ankylosis from encroaching bony masses. When close approximation is obtained in alignment, union is hastened, as there is no intermediate stage of cartilage formation and no excessive callus.

30 SCHERMERHORN STREET.

THE PERSONAL FACTOR IN INFANT FEEDING.

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The mistakes of infant feeding are not all due to failures in the technic. Grievous faults, which are in no manner attributable to the food selected or the method of the feeding, are often traceable to the person who directs the process.

Compared with his other duties, infant feeding is an inglorious affair with many a physician. Therefore in the absence of adequate and definite instruction backed by sufficient enthusiasm to see that its details are carried out, the kindly disposed but officious neighbor, a self sufficient nursery maid, or in some instances the mother, undertakes the adaptation of the food upon her own initiative. And what is the common result? Because of the ease with which they are prepared or the insistence of their constant exploitation, one of the several proprietary foods is commonly selected.

If such a preparation is reasonably acceptable to the infant's digestive tract, its use is usually persisted in, and the cause of the attacks of digestive disturbance, which are common, is often laid to some particular error instead of the persistent use of unadapted food.

In the main, these foods are of three types; those used without the addition of milk; the dried milk foods; and those used with fresh milk. Those to be used without the addition of milk do not contain the nutritional elements of normal breast milk, are weak in animal fat and deficient in animal milk protein, and they are cooked foods, all of which is disadvantageous. Persistence in their use often results in scurvy.

The dried milk foods are also deficient; their use is permissible during illness or as additions to the diet, but not as the basis of the diet. The foods used with fresh milk are not foods in themselves, but as carbohydrate combinations, are added to cow's milk and modify its nutritive value.

The long continued use of any of these foods to the exclusion of other diet, will result in asymmetrical development and commonly produce a mild but chronic state of malnutrition which finally becomes an important factor in the prognosis of any acute illness. Infants fed therewith often appear healthy to the casual observer. The real test comes when such infants are the subjects of acute disease, for it is at that time that nutritional faults are emphasized. It is not uncommon to observe that the morbidity and the mortality of acute disease in infants are directly influenced by the preceding nutritional state.

In the artificial feeding of infants, top milk adaptations hold precedence over other methods in general practice, because they are simple, efficient, and inexpensive.

Other methods have their place, each having its advocates and enjoying a period of ascendancy. But for every day general use, top milk adaptations are most practical. Provided always that the same amount of top milk is taken from the quart after the same period of standing, the effect upon the infant's nutrition may be accurately observed and adaptations easily made to meet changing conditions.

To obtain top milk for infant feeding, a quart of milk should stand undisturbed for five hours at a temperature of from 40° to 50° F. and the quantity required removed by siphonage or a cream dipper. To work with top milk, it is absolutely necessary to know a few percentages. In average milk, the top sixteen ounces contain seven per cent. of fat, three per cent. plus of sugar, and three per cent. plus of total protein. When a higher percentage of fat is desirable, the top ten ounces may be removed which contain on an average ten per cent. of fat. With these two percentages clearly in mind, it is possible to work in the average case with reasonable certainty of success.

Knowing the fat content, we may for the time disregard the protein element, diluting the top milk to the extent of obtaining a suitable percentage of fat content and adding sugar to the diluent in the proportions of five per cent. if plain water is used, and three per cent. if a cereal diluent is added. The percentage of sugar is based upon the amount of the diluent and not upon the whole mixture, because the top milk has its sugar content. The attempt to be too exacting in the adaptation of milk to infant feeding has led to much confusion, and a

clear perception of the general adaptability of the two mentioned top milk percentages will do much to aid the general practitioner.

Infant feeding is a bone of contention even among pediatricists, and when these disagree how can the general practitioner prescribe intelligently? At the expense of being considered a little less scientific, we should assist by being more practical and bring at least partial success out of the present chaos.

When we seek a diluent, there are several that might be chosen, but I shall consider only the most practical. Whey, if properly prepared, is an ideal diluent, but in its selection consideration must be given to the possibility of its perfect production. The following details must be rigidly observed if its value as a diluent is to be maintained: 1. While the curd is forming the mixture must not be disturbed; 2, after the curd has formed, it must be broken up as gently as possible. Disregard of either of these details will result in a liberation of the fat content to an uncertain quantity and will result in inaccuracy in the adaptation of the formula; 3, the action of the rennet or curdling ferment must be destroyed before the whey is used as a diluent; 4, the lactalbumin is better not coagulated.

To destroy the action of the ferment, the whey must be heated. At a temperature of 160° F., however, coagulation of the lactalbumin takes place.

A temperature of 150° to 155° F. will destroy the ferment without coagulation. Whey thus made approximates very closely and consistently to one per cent. of fat and this should be counted upon in the adaptation of the formula. The objections to whey as a diluent are the difficulties of its proper preparation and its expense, either or both of which may be reasonable objections in many instances.

Water with citrate of sodium in proper proportion is an excellent diluent and perhaps the most serviceable because the most practical. The theory of the action of the citrate is uncertain, but clinically the fact remains that its addition makes the milk curd more digestible. The usual proportion is one grain to each ounce of milk used. The objection is its slight constipating effect.

Plain water as a routine diluent has much in its favor with none of the objections of expense, preparation, and prejudice that many other diluents have.

Lime water is not a necessary diluent, although commonly considered so. When milk is perfectly digested nothing is gained by the addition of lime water. In some instances it seems to act by reducing the firmness of the curd and assisting thereby the digestion, but this action is slight. The belief that it helps bone formation or reduces in any particular the tendency toward rickets is absolutely without foundation. Lime water is neither a preventive nor a corrective of any rhachitic manifestation.

Cereal diluents, if properly prepared, add to the digestibility of the milk, but if not properly prepared, they add materially to the discomfort of its digestion.

The term "modified milk" is a good one to abandon.

don. As used at present, modified milk means the manipulation of cow's milk in numberless ways, many of which violate the principles originally involved. It seems to make little difference what is done to the milk; mere dilution with water, regulation of any one or all of its elements, the addition of cream, sugar, lime water, citrate of sodium, bicarbonate of sodium, or any other abstraction or addition; it is all modified milk. This adds to the confusion of the medical profession as well as the laity.

The aim of modification is to approximate cow's milk to human milk. It cannot be done. It is impossible to modify milk from the cow to make a fluid identical with human milk. We may bring the proportion of the solids as closely as possible to the human product, yet there will always remain a difference in the chemical composition of the proteins, the fats, and the carbohydrates, and it is this chemical difference that seems most active in many infants.

I am convinced that in this aim we are wrong; the aim of modification should not be toward a human standard, but to the need of the particular infant under observation. The infant cannot be fitted to an arbitrary modification because of his age or his apparent caloric need, but the food should be adapted to his requirement at the time; in every case this is an individual problem.

With any adaptation there are some common symptoms that are indicative of the need of further adjustment; these principally are as follows:

Vomiting, regurgitation and colic usually accompany overfeeding and as acute dilatation is readily produced the vomiting becomes persistent and habitual and the infant does not gain.

Vomiting of curdled milk and mucus with a rancid odor occurs when the fat content is too high.

Diarrhea with straining and watery, green stools indicates that the fat content is too high. Vomiting quickly supervenes and at times fat globules may be detected in the stool or vomitus with a low power lens.

Colic indicates that the whole mixture is too strong.

Constipation and retarded gain in weight indicate too low fat content, too weak food, or too little quantity.

Curds in the stool accompanied with flatulence are common with too high protein, but this is not always so.

A languid anemic infant with flabby musculature usually requires more protein, and it is peculiar that in such infants curds may persist in the stool until the protein deficiency is corrected when they disappear. Such curds are chiefly albumin due to the abnormality of the relative proportions of fat and protein, or are insoluble curds allowed to form by the uncombined acid in the stomach. An excess of free acid is common when the protein is low. Failure to gain in weight or strength, but with comfortable digestion, is suggestive of a deficiency in both fat and protein.

Sour, watery eructations may depend upon an excess of sugar or fat.

Weight requires to be interpreted with care and discretion. The single factor of weight is at the

present time overestimated as an indication of the infant's development.

It must be clear that percentage increases are more important than absolute increases; also that there are considerable daily variations, which in the infant at six months often amount to six ounces which represent the fall between the evening and the morning weights. This difference is largely accounted for by the loss of water from the lungs and skin and the evacuation of urine not being counterbalanced by the food taken through the night. Other factors are the presence of food in the stomach, urine in the bladder, and feces in the rectum, and the difference in weight when these are full may be as much as ten or twelve ounces.

Increase in weight may represent only fat deposit, which may in itself be beneficial or harmful. Weight, while a valuable guide to the infant's nutrition, as a single factor is commonly overestimated. We aim for symmetrical development, not mere increase in weight. Pediatricists commonly observe infants who have apparently thrived upon a poorly selected food for a considerable period; infants who have gained suspiciously in weight, but who within a few weeks exhibit unmistakable evidences of rickets or of scurbutus.

Weight must always be considered in its association with comfortable digestion, adequate muscular tone, physical activity, and mental vigor.

My aim has been to be practical; to assist the general practitioner in understanding the more general problems of infant feeding and to emphasize the importance of the personal factor. Infant feeding is a many sided problem and involves many other things; or, as Northrup has very aptly put it: "Infant feeding is not only a question of modifying the milk, but the parents must be modified, and the baby must be modified." Infants need more than adjustment of their diet; they need air, suitable clothing, mental and physical quiet.

There is a science and an art of infant feeding; heretofore we have made too much of the science and too little of the art. Important as it is to be alive to all that science can teach us, in infant feeding the personal factor is a strong one and each infant is a law unto itself. Infant feeding is an individual problem, and success or failure is very largely dependent upon the person who not alone initiates but continually supervises the feeding.

42 GATES AVENUE.

PELVIC ABSCESS FOLLOWING THE FOWLER POSITION IN APPENDICITIS*

BY H. BEECKMAN DELA TOUR, M. D.,
Brooklyn, New York.

The elevated head and trunk, "Fowler position," has proved a most valuable aid in saving appendicitis cases with general peritonitis. It is my belief, however, that a large percentage of the cases reported as general suppurative peritonitis are really not true cases. In our practice we have seen many cases of acute appendicitis in which the abdomen was full of serum clouded with lymph. In these cases, for some reason, there had been an unusual

*Read before the Medical Association of the Greater City of New York, October 10, 1914.

amount of serum exuded, but without those changes in the peritoneum which we would recognize as inflammatory. In such cases it has been our custom for many years, if the appendix, although gangrenous, had not perforated, to close the abdomen without irrigation and without drainage. The results have very generally justified the procedure. Many of these cases, I believe, have been reported as cases of purulent peritonitis and their recovery has been credited to postural treatment.

In making this comment, I do not wish to convey the idea that I lack faith in the elevated trunk posture, as an aid in septic cases. In cases of true septic peritonitis with changes in the peritoneal coat of the intestine, distention of the intestines, free fluid in the abdomen, and a tendency to form new adhesions, much is to be gained by impeding the flow through the lymphatics toward the diaphragm. The gravitation of septic material into the pelvis certainly accomplishes this.

Most of us have frequently asked the question, What becomes of this septic material; can we drain all this away by our drainage carried into the pelvis? Apparently in the majority of cases this drainage is all sufficient, but in a few evidently it is not. The case histories show what happens in some of the cases.

Most surgeons will recall cases of appendicitis which have been drained and done nicely up to a certain point; the temperature never became normal, the wound ceased to drain. Thorough examination and probing failed to reveal any pocket of pus, and yet the low temperature continued and the patient did not improve as much as he should. We have seen a number of such cases and have allowed them to go home still with a low temperature. Others, while still in the hospital, have begun to improve, the temperature suddenly becoming normal, and the whole picture better. What was the cause of the change? From our recent experience we are inclined to believe that these cases all had a small collection of pus, not highly infective, in the deep pelvis, which never was drained. In the case in which the sudden improvement took place, the abscess spontaneously ruptured into the rectum and the discharge of pus was not recognized. In some, the process was not very active, and later became encapsulated or the exudate was absorbed.

In November, 1898 (*Brooklyn Medical Journal*), under the title, *The Importance of Rectal Examination in Doubtful Cases of Appendicitis*, I called attention to the importance of making rectal examinations as an aid to diagnosis. In conjunction with these cases, I wish again to draw attention to this method of examination, for it is one of the recognized procedures that is frequently not employed. My attention was first directed to the development of pelvic abscess after appendicitis, three years ago by the following case:

CASE. A young man was admitted to the Norwegian Hospital with a very acute attack of appendicitis. On opening the abdomen, which was somewhat distended, there was a discharge of a large quantity of purulent serum. The appendix was gangrenous and perforated about the middle, but apparently there was no discharge. After removal of the appendix, as much of the fluid as was in the wound was sponged away, and a cigarette drain

carried to the pelvis. The wound was partially closed and the patient when returned to bed was placed in the Fowler position. He was making a satisfactory recovery, when at the end of a week he began to complain of pain in the left iliac region, and the temperature was higher. The original wound was draining very little and with no tenderness about it. Two days later, a left side incision was made and an abscess in the left iliac fossa evacuated and drained. The temperature following this, dropped some, but not to normal. The nurse then reported that he was having a diarrhea, and the patient complained of a good deal of pain with the movements; he said he had "piles." Local heat was applied and some medication administered for the diarrhea.

At my next visit, this condition was reported to me: He had almost continuous desire to have the bowels move, but the movements were scanty and contained much mucus. Examination revealed no hemorrhoids and no evidence of ischiorectal abscess. On introducing the examining finger, there was considerable pain. The finger then detected, just beyond the prostate, a mass bulging into the rectum. This had so much the feel of a distended bladder, that further examination was deferred until the bladder was emptied. The withdrawal of the finger was followed by the discharge of considerable mucus.

After emptying the bladder, examination was repeated and the mass was still present, and gave the sense of fluctuation. We concluded we had a pelvic abscess, and had the patient immediately placed under ether. The sphincter was then thoroughly dilated and a speculum introduced. The bulging in the anterior wall of the rectum was plainly visible. The mucous membrane was thoroughly cleaned with sponges, and a longitudinal incision made through the rectal mucous membrane into the mass. About three ounces of pus was evacuated. A half inch drainage tube covered with iodiform gauze, was introduced, and brought out through the anus. On the fourth day all drainage ceased and the tube was removed. A cathartic was given the next day. No further treatment was given the abscess. From the time of the evacuation of this pus, the temperature became normal and the general condition of the patient began to improve. He left the hospital two weeks later, entirely recovered.

Since the care of the foregoing case, three years ago, we have had six similar cases. This leads us to believe that the condition is not a rare one and should certainly be suspected in certain cases. In all of these later cases, except one, the abscess was treated in the same manner. In this case, the mass was not as large and was further from the anus; it was difficult to reach with the scalpel to incise it, and we determined to try aspiration. Accordingly a large aspirating needle was plunged into the mass and two ounces of pus withdrawn. This procedure was followed by satisfactory recovery.

The point which we desire to emphasize is, that in those cases of septic peritonitis, where the patient continues to show abnormal temperature, and the wound looks healthy, and careful examination of it shows no undrained pockets, be sure to make a rectal examination, especially if the patient is losing ground, and has frequent bowel movements, with tenesmus and the discharge of mucus. If on examination, an abscess is found, do not hesitate to drain it through the rectum. There is apparently little or no danger of infection from this source. To wait for the abscess to be reached easily from in front, is to lose valuable time, and the incision through the abdominal wall will leave a weak point for the development of hernia, as drainage must be continued for some time. While aspiration may prove satisfactory in some cases, we recommend incision whenever possible.

73 EIGHTH AVENUE.

THE CONTROL OF HEMORRHAGE IN SUPRAPUBIC PROSTATECTOMY.*

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Much has been written in recent years concerning the technic of prostatectomy. Each surgeon has established in his own practice those methods which seem to him to yield the best results. In my own work, having done perineal prostatectomies in one stage with the usual degree of success, I began doing the operation in two stages, since which time eighteen cases of hypertrophy have been operated in with no death. In the early cases the cause of death was attributed to the sudden relief of back pressure upon the kidneys, since most of the cases which came to me then were complicated by acute retention. Another complication was profuse hemorrhage, due also in great part to the fact that the operation was done in one stage, i. e., that the prostate was removed before time was allowed for it to become less hyperemic. Even when done in two stages, however, there are cases in which bleeding is profuse.

Many methods have been devised to control this hemorrhage. The method which has been entirely satisfactory in my hands is as follows: The tip of a tube of a suction apparatus with a direct inflow for hot solution is placed in the cavity from which the prostate has been removed. The inflow tube is connected with an irrigator containing boiling water. The sucking portion of the apparatus is connected with the vacuum bottle in which a vacuum is maintained in the usual manner by flowing water. The apparatus, before its introduction, is tested, for it is important that suction be perfect. Introduced into the cavity with the inflow tube shut off, all blood is sucked out, and while this suction is continued the boiling water is allowed to flow through the inflow tube into the cavity. The inflow is regulated so that the suction does not allow the boiling solution to come in contact with any but the raw tissues. This is readily accomplished. After two minutes' application of the boiling solution hemostasis is complete, and the surrounding parts have not been injured.

No doubt this method of procedure has been applied by other surgeons, but so far it has escaped my notice in the literature; it is recommended as simple and efficient.

301 DEKALB AVENUE.

Treatment of Pruritus ani.—A. B. Cooke, in his recently issued work, *Diseases of the Rectum and Anus*, states that one of the best remedies for this condition is hot water. It should be applied just before retiring, and to be of greatest benefit, should be used as hot as can be borne; the application should be continued for at least ten minutes. Among the most generally useful drugs employed for the same purpose is phenol, which may be used either in a lotion or ointment, the strength of the preparation varying from one to five per cent., according to results. The author deems citrine ointment (unguentum hydrargyri nitratis) most useful.

THE ETIOLOGY AND TREATMENT OF COLONOSPASM.*

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The study of the gastrointestinal tract and its related organs has occupied a large share of the attention of the medical world in recent years. It is with difficulty we follow developments, except those in which we are particularly interested. General attention is arrested by the more radical and spectacular. The demonstration of definite organic lesions as causes of a wide variety of abdominal complaints and the activity of surgery in this field have resulted in a lessened interest in less readily demonstrated lesions and less radical measures of cure. The era when all interest was centred in the discovery of abnormal function has passed, but at the present time the tendency is to go too far, overlooking the importance of functional derangements as causes *per se* of symptoms and organic lesions.

Spasm of the intestinal tract was formerly quite in vogue as a diagnosis for all sorts of abdominal complaints. At the present time such an explanation of abdominal pain is regarded with a considerable degree of suspicion, the feeling being that if indeed pain does arise from colonospasm, it is the result of an intestinal lesion. This, in my opinion, is a serious mistake, for certainly some of the most severe and persistent abdominal pains arise solely from irritation of the mucosa and undue irritability of the nervous system, resulting in spastic contraction of the whole or a segment of the large bowel, and to a lesser degree the small bowel.

CLINICAL GROUPS.

These cases may be roughly separated into three groups, as they exhibit marked differences in the pictures they present, depending on differences in their etiology.

1. *Neurogenous group.* Since the original articles by Sirdley and DaCosta, clinicians have recognized a symptom complex characterized by the passage of large quantities of mucus associated with attacks of colic or persistent abdominal pain. Usually the attacks began in the second or third decade of life, although not unknown in childhood. The patient, usually of the female sex, is almost always of a highly neurotic, hysterical temperament. These patients are usually, although not always, of enteroptotic habit and as a rule are badly nourished and underfed. Attacks are particularly liable to follow periods of overwork or emotional stress and to recur at the menstrual epoch. The pain is usually sudden in its onset and gradual in its cessation, lasting a few hours to several days. It is located across the mid abdomen or more on one side than the other. At the height of the pain there is often slight tenderness to pressure, but deep pressure over the colon frequently gives a feeling of comfort. There is no unconscious rigidity, but the neurotic patient may harden the muscle for a time through fear. Rise of temperature is not observed, the blood

*Clinical lecture at the German Hospital of Brooklyn, January 28, 1915.

*Read at the annual meeting of the Warren County Medical Society, Glens Falls, N. Y., October 14, 1914.

count is normal, and there is no actual chill. At the time of an attack and between attacks the patient is constipated; cathartics give unsatisfactory stools and frequently exacerbations of pain. The stools are typically spastic in character if formed, either very small calibred or made up of many tiny balls. Between the attacks of actual colic there is usually a constant sense of discomfort along the course of the colon or in some particular spot.

During the attack and more or less constantly between attacks there is a passage of strings, lumps, or masses of whitish or brownish mucus. When it is pressed flat or round, it resembles the lining of the bowel or worms.

2. *Catarrhal group.* A different picture is presented by cases that may be grouped as catarrhal, although there is more variation in the picture presented than in the first group. The majority are in the male sex, and the condition is first complained of in middle life or actually advanced years. They are not necessarily neurotic in any sense, although the complaint may follow a period of mental or physical strain. These patients complain of attacks of pain, which vary in severity from the most severe and prostrating colic to a mild distress. The pain is referred to the mid abdomen or one side, particularly the left, frequently as low as the left iliac fossa. Between the attacks there may be freedom from distress or slight discomfort in the abdomen rather constantly or with regularity about four hours after meals, possibly when the residue of the meal reaches the ascending colon. A feeling of gas in the bowel and relief on its expulsion is common. Genuine distention of the abdomen is not observed, although there is a complaint of fullness. The bowels are irregular, costiveness and looseness alternating; the stools when formed are small calibred or in the form of tiny balls. Mucus is passed in small amounts and may be entirely unobserved. It is sometimes seen to be decidedly blood tinged. It is obvious that considering the age of these patients we have to deal with a condition that may closely resemble a number of definite abdominal lesions.

3. *Mechanical obstruction group.* This closely resembles the former group in symptomatology, and is not to be distinguished from them, except through the most careful study of the history of the affection, the examination of the bismuth filled colon with the fluoroscope or serial roentgenography, and the observation of the effects of conservative treatment; it is a group of cases having slight obstruction by adhesions or bands. In itself this obstruction may be slight, but it causes a point of partial stasis with resulting catarrh, and spasm is added as a periodical complication. At the present time the tendency would perhaps be to assume some partial obstruction in all cases of spasm, but I am sure from my observation of these cases that this is entirely incorrect.

There is a considerable group of cases in which exploration discloses a perityphlitis or an inflamed veil covering the cecum and ascending colon. The removal of the appendix alone in these cases, although it is abnormal, does not give satisfactory relief of symptoms, and it is very possible that some

measures must be adopted looking to the removal of this veil and possibly the fixation of the cecum in its normal place. While it may be true that symptoms are given by this pathological condition, we are probably dealing with the result of spasm and stasis, and little in the way of permanent relief can be hoped for in surgical measures; possibly a cure can be brought about only by a combination of surgery which removes the result of the stasis and medical measures which prevent a recurrence.

ETIOLOGY.

It seems to me we are justified in coming to the following conclusions as to the causative factors of such colonospasm:

1. The secretion of mucus, and peristalsis are under control of the nervous system. The response to stimuli from the bowel varies with the individual nervous system.
2. Secretion of mucus is a phenomenon of a protective nature and is not to be regarded as a necessary evidence of inflammation.
3. Enteroptosis, general asthenia, insufficient feeding, and a dietary with insufficient residue for stimulation of orderly peristalsis predispose to constipation.
4. In itself constipation is not sufficient to produce colonospasm or excessive mucus production. The most long standing and obstinate stasis may never be attended with either of these phenomena.
5. Spasmodic contraction of the colon and excessive mucus production are to be regarded as the results of abnormal irritation of the bowel, by either mechanical or chemical stimuli; or of undue irritability of the bowel from inflammation or ulceration of the mucosa; or of undue irritability of the nervous system.
6. Reflex irritation from the appendix, the external or internal genitalia, or the rectum and anus may reflexly play a part in the production of spasm.
7. Cathartics are to be classed as bowel irritants and looked upon as direct inciters of abnormal, painful peristalsis.
8. Catarrh of the colon is set up with greatest frequency at the hepatic and splenic flexures and the sigmoid loop.

DIAGNOSIS.

So far as the first group is concerned, there is not ordinarily a great deal of difficulty in the recognition of the picture. I have, however, seen young women in the first attack when the localization of the pain was such that acute appendicitis could be eliminated only with time and difficulty, or by the negative results of exploration. Certainly too much caution cannot be observed in the study of these cases, for one may wait unwisely for a rise of temperature or a positive blood count. Localized tenderness and unconscious rigidity often practically decide the issue in favor of an affected appendix. During the initial attack positive diagnosis may be impossible. It is the study of the case between the attacks, and the effect of remedial measures that may decide whether in fact we are dealing with a recurrent affection of the appendix.

Cases in the second and third group present more difficulty in diagnosis and usually require the most

thorough examination by all our diagnostic resources before we can come to a definite conclusion. Acute or chronic appendicitis may possibly be excluded only by treatment or by exploration and removal of the appendix. Usually in chronic appendicitis some symptoms are referred to the stomach. We cannot regard the absence of tenderness in the right iliac fossa as an absolute contraindication of chronic appendix disease, but, we rather expect sharply localized tenderness or a definite history of abdominal disability in which tenderness and rigidity have been observed. One of the difficulties of the matter is that we frequently see patients who are afflicted with chronic change in the appendix and also in the entire colon, in whom the cure of either alone is insufficient for the relief of the complaint.

Superficial or deep multiple ulcerations of the mucosa are usually amebic and motile amebae establish the diagnosis. Malignant disease of the colon shows itself usually by the gradual onset of constipation, deterioration in general flesh and strength, and the recurrence of attacks of abdominal pain, distention, and obstipation. The exclusion of malignant disease may present great difficulties unless the diseased area can be felt or seen from below. By fluoroscopic examination and radiographs after the ingestion and injection of bismuth we are able to come to positive conclusions much earlier than before the development of this method.

In addition to the problems of differential diagnosis, we must concern ourselves with a search for the factors that may be responsible for the spasm. This involves a most thorough study of the individual patient, all habits of life, and physical deviations from the normal. There is no question in my mind that the ultimate cause of the spasm and mucus production in many of these patients is the abnormal irritability of the autonomous nervous system. It is a matter of observation that patients of Group 1 are prone to periodic dysmenorrhea, spasm of the bladder, urethra, and vagina, for which there is no pathological basis or one so slight that the same clinical results would not be observed in a less neurotic subject. Nevertheless, we must study accurately all points of local irritation within the bowel and possible reflex irritations.

The demonstration of catarrh of the colon is not always an easy matter. Catarrhal conditions are not necessarily constant, but subject to periods of remission and exacerbation. The appearance of blood tinged mucus is a fairly definite point in the establishment of a diagnosis of catarrh or ulceration. Macroscopic mucus in a nonneurotic subject demands an explanation. Sigmoidoscopy is of the greatest value and should be used as a routine in the study of these cases. It is the exceptional case that does not show evidences of an inflammation of the sigmoid mucosa when there is actual inflammation of other parts of the bowel, although this may be found from stasis at the splenic and hepatic flexures. We know that daily evacuation of the bowel does not call in question the fact that the colon may be generally loaded or that marked delay may be occurring at some particular time. These points can be determined only by careful examination by the fluoroscope or a series of plates.

TREATMENT.

A. The relief of the acute attack. The treatment of colonospasm resolves itself into the relief of the acute attack and the removal of conditions responsible for its occurrence. As all three groups that have been outlined are subject to attacks of acute abdominal colic, we may consider this phase of the matter for all cases at the same time. The patient is to be kept in bed and relieved as far as possible of all sources of anxiety about his complaint and other matters. The medication should be confined to large doses of bromide, one half to one dram in solution, administered once or twice daily. Atropine in doses of 1-200 of a grain should be administered every three hours until there is perceptible dryness of the mouth or other evidence of its action. There is great objection to the use of codeine or morphine if the patients are neurotic, although one or both may have to be used. Hot stupes, strong turpentine stupes, mustard plasters, and the like are of considerable value. It is not advisable to administer laxatives, as they unquestionably aggravate the difficulty. Enemata during the time of the attack are apt to cause exacerbation of the spasm and accomplish very little. If there is reason to believe that a catarrhal condition underlies the spasm, there is some justification for the use of small enemata of warm oil or thin flaxseed mucilage or ten per cent. gelatin. On the whole, however, it is a mistake to institute such measures until twenty-four hours after the subsidence of severe pain.

B. Treatment of the chronic condition: 1. The neurogenous group. (a) The treatment of these patients is to be directed first to the nervous malady, and, secondly, to the cause of the colon irritation. The difficulty in establishing a cure in these cases is largely inherent in our inability to cure the various functional psychoses. The subject is an exceedingly complex one, and opinions as to their cause and cure differ widely. At present the tendency is to regard them as results of toxemia of some sort, but I doubt that this has its origin in the intestinal tract. Occasionally one encounters instances in which indicanuria is a constant feature, but I think these patients will probably be found to represent a small group where for one reason or another there is a disturbance of small intestinal digestion, possibly the result of a stasis in the ileum. In the treatment of these patients, an alteration in the condition of life may have a profound effect on the mentality of the patient and result in the removal of the colon irritability entirely or for long periods. This may require the substitution of a new interest or the stimulus of a new religion which diverts the mind.

(b) So far as the colon itself is concerned, we must remove conditions which tend toward irritation. Reflex irritation of the colon which leads to spasm is best controlled by the use of bromides and some preparation of valerian and chloral hydrate. Atropine to the physiological limit over long periods of time in the *vagotomik* group of patients, gives some results. Possibly some of these patients suffer from a disturbance of the internal secretions, although at the present time our measures of relief in this direction are entirely unsatisfactory.

The spastic constipation is treated by the institution of a bulky diet; that is, a diet leaving the largest possible residue. While it is very necessary in these cases to give a stipulated diet, designating both kind and amount of food, it is sufficient for our purpose at present, if we agree that the patient should take a liberal quantity of the vegetables and fruits which are rich in cellulose, and that they have an abundance of fat such as cream and butter. Further to increase the residue in the colon, several teaspoonfuls of agar should be taken daily, mixed with cereal, apple sauce, or in whatever way it may be found easiest. Injections of warm olive, sesame, or petroleum oil at bed time to be retained over night are often of benefit. This should be done from two to five times a week. These patients are under nourished and enteroptotic, and a diet of high caloric value with consequent addition to bodily weight and fat in the abdomen, is strongly to be advised. A temporary rest cure unquestionably helps to increase the weight and makes it possible for asthenic stomachs to take care of more food than when the patient is on his feet.

Belts, corsets, systematic exercises of the abdomen, and development of the thorax may all be considered as part of the treatment of the ptosis when it is a factor in the production of the spastic constipation. The value of surgical measures in the treatment of these cases is still *sub judice*.

It has been my experience that the breaking up of adhesions, the removal of the appendix, and operations on the pelvic organs have given disappointing results. Many of these patients are operated upon and sometimes many operations are performed on the same patient with the removal of one organ after another. This sort of diagnosis by exclusion and *reductio ad absurdum* should be refrained from.

2. *Treatment of the catarrhal group.* (a) My experience in the treatment of these cases has brought me to the conclusion that local or general stasis is responsible in large measure for the chronic catarrh. The cases are characterized by alternating constipation and diarrhea, but the most certain way of correcting the diarrhea is to cure the constipation. Instead then of prescribing a diet which is bland and constipating, we advise the same sort of diet that is used in the treatment of cases which do not show evidence of catarrh, one having an abundance of residue. Uncooked fruits and sugars are usually to be avoided, as they tend to cause excessive irritation. Agar, mineral oil, and petrolatum relieve constipation, are entirely un irritating, and tend to diminish the putrefaction and exacerbation of the catarrhal conditions. It is wonderful how cases which have been confined to a strict diet of milk, cereal, and buttermilk, etc., for weeks and months without any betterment, immediately respond to this radical alteration in diet. There is a small group of cases where an acute catarrh of the bowels must be handled with temporary rest of the digestive tract as well as physical rest. There is less likelihood of recurrence of acute inflammation on the coarse anticonstipation diet than by the continuance of the bland antidiarrheal regimen.

Many measures have been suggested for the treatment of the catarrhal conditions of the colon, but I have come to rely largely on injections of ten to fifteen per cent. solution of sheet gelatin in an amount of eight to thirty-two ounces, given preferably through a rectal tube best introduced through a sigmoidoscope. This method makes it possible to use a temperature of 120° F., which has seemed to be a considerable factor in the success of the injection. This is repeated in from one to three days, and the results upon the mucous membrane are observed through the examining tube. This plan of treatment has proved most efficacious when it is evident that we had to deal with an inflammatory condition in the sigmoid flexure.

The value of massive doses of bismuth carbonate, two to four ounces at a time, was called to my attention several years ago by the prompt relief of colitis after its use for x ray study of the colon. We formerly expected small doses of the subnitrate of bismuth to have a constipating effect, but this is not true of the carbonate as it is at present used. While it may be necessary to repeat these large doses of bismuth once a week over a long period, I have repeatedly observed the most persistent abdominal pain due to spasm accompanying chronic catarrh of the bowel, permanently relieved after a few doses.

Treatment of the obstruction group. The treatment of cases in which adhesions and angulation play a part in the recurrence of stasis, inflammation of the mucosa, and spasm, is not to be settled without the greatest care in deciding whether the anatomical condition is sufficient or of such character as to warrant surgical measures of relief. The cases require very painstaking study, and when the disability is sufficiently great, when x ray study of the bowel strongly indicates adhesion and angulation, and conservative measures do not succeed in relieving the disability, operative interference is to be seriously considered. Occasionally one sees remarkable cures effected in cases that have resisted medical treatment, by cutting definite bands of adhesion, but on the other hand I have seen many very bad cases, in which the symptomatology, x ray, and previous exploration gave positive demonstration of the presence of adhesions and angulations, entirely relieved by conservative measures.

We have also to consider the advisability of surgical intervention in the group of cases where the persistence of the complaints, their localization in the region of the cecum, and fluoroscopy suggest an inflamed veil or perityphlitis of the bowel. Decision as to the wisdom of such action is a question that can be reached only by a careful weighing of all the evidence and recognition of the fact that surgery cannot hope to remove an underlying neurasthenic habit to which in large part the spasm and stasis are to be traced.

This whole question of the surgery of the colon is at the present time in an entirely formative stage, and we are thoroughly justified in adopting a conservatism which accomplishes even the partial relief of minor disabilities without hazarding life by radical measures of doubtful utility.

84 REMSEN STREET.

STANDARDIZATION OF THE PREPARATION OF PATIENTS FOR ABDOMINAL OPERATIONS.*

BY HENRY F. GRAHAM, M. D., F. A. C. S.,
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The desire to have a single standard method used throughout all our hospitals in preparing patients for abdominal operations may seem a Utopian dream, but a careful examination of the facts obtained from nineteen of the hospitals of Kings county shows that a remarkable uniformity already exists and that a little cooperation and a few informal discussions could easily remove all differences.

The necessity for such a uniform method in all of our hospitals may not be easy of proof, but all will agree that nothing tends more to give smooth running machinery where a number of men are operating than the adoption of a standard method of preparation, standard instruments and catgut, and, as far as possible, standard methods of postoperative care; while nothing so much causes friction and makes the cogs grind and clatter as the introduction of many unimportant whims by each individual where many surgeons must be catered to.

In more than one hospital of this city the supervisor of nurses does not know what method should be used in preparing an individual who has just entered for operation, because the methods are as numerous as the members of the attending staff. The house surgeon, himself, often learns all the finer differences in Epicurean surgical taste only after he has spent some weeks in his new job.

And yet these differences are so unimportant and trivial that they might easily be eliminated. I think that no one would wish to maintain that his results were so far superior to the other man's as to demonstrate conclusively the advantage of his technic.

Iodine is used almost exclusively as a local application, although one or two men omit it in an occasional case and substitute the now almost obsolete scrubbing with soap and water. The iodine is applied twice or, by some, once only. The solution used is one half or full strength tincture.

Greater differences in regard to catharsis are noted. Those chiefly used are calomel followed by salts or castor oil with or without an enema. In some instances no cathartic is used, the enema alone being given. Some insist on the enema the night before operation, while others wish it to be given early on the morning of the operation.

There are many advocates of the dry shave and as many more who allow soap and water followed by alcohol. I have been unable to find any hospital where attention to the teeth is required of the nurse who does the preparation. Of course, our greatest desire is to do as little as possible to our patients. We wish to avoid putting them through any unnecessary third degree which will leave them dreading that which is to come. After discussing some of the advantages and disadvantages of the various methods I take the liberty of describing what appeals to me as the ideal method.

Cathartics. Calomel often gripes, causes nausea,

and tends toward restlessness when given at night. According to Combe, it increases the indican in the urine as a primary effect. Salts increase gas in the intestines, increase distention, and favor bacterial proliferation, to say nothing of their depleting and weakening effect in the aged. Castor oil in many ways is an ideal cathartic. In sufficient doses its action is prompt. It is not followed by gas, but, on the contrary, the intestines are collapsed and ribbonlike. The chief objection to its use has always been its disagreeable taste and the fact that it causes nausea and the constant repetition of the taste in the mouth later. These objections can be largely overcome by the use of a tasteless castor oil. This has no more flavor than the ordinary Russian mineral oil while retaining all the activity of castor oil.

The enema. The majority of surgeons use the enema the night before, and this seems to be the preferable practice, for, when it is given in the morning, the operator is sure to receive an occasional shower bath. This was admitted by one of the advocates of the morning use of the enema and I have often seen it happen. An enema at nine or ten p. m. tends to remove any oil that may remain in the colon and thus insures a night of peace from colic and bowel movements.

Shaving. The use of the dry shave seems an unnecessary piece of barbarism. What objection can there be to tincture of green soap? No water need be used to wash this off, as it is readily soluble in alcohol. If desired, five minutes may be allowed to elapse after the alcohol before applying the iodine.

Iodine. In using iodine one would not expect a single application hastily given on the table and promptly washed away by blood from the wound, in many instances, which is one of the best solvents of iodine, to be as effective a germicide as two coats, one of which has a longer time to act. Yet two coats of the official tincture occasionally cause blistering. Two coats of one half strength tincture of iodine would seem about ideal. It should be allowed to dry thoroughly before the protectors and towels are applied, otherwise an iodine soaked piece of cloth may cause a ribbonlike blister.

Mouth and teeth. Why should not the mouth and teeth be inspected and cared for as a matter of routine in the preparation? Cleansing with a cotton swab and painting the teeth with tincture of iodine when Riggs's disease is present will take only a few minutes.

Hypnotics. A hypnotic will give a good sleep to many a one who would otherwise toss from side to side through the long night, filled with anxiety and fear for the morning. Trional for its hypnotic action and sodium bromide to prolong the effect of the trional work well together.

PREPARATION FOR ABDOMINAL OPERATION.

1. Tasteless castor oil—one ounce—on admission but not later than seven p. m.
2. Tub bath, if necessary.
3. Shave with tincture of green soap, followed by alcohol and allowed to dry while the mouth is inspected, dirty teeth cleansed with a cotton swab and, if necessary, painted with tincture of iodine. The razor should be sterile.
4. Paint the area with one half strength tincture of iodine and apply sterile compresses.

*Read before the Hospital Surgeons' Association of Kings County, October 17, 1914.

5. Farinaceous diet is ordered and a pitcher of water and a glass placed by the bedside and the patient encouraged to drink freely.

6. Physical examination by the house surgeon.

7. Specimen of urine sent to the laboratory for examination.

8. Enema at nine p. m. and trional, grains five, and sodium bromide, grains thirty, given.

9. In the morning, weak tea or coffee or water allowed up to within two hours of operation, unless special contraindication exists.

10. Emptying of the bladder or catheterization just before leaving for the operating room.

Emergency operations and at times operations for some exceptional condition will necessitate deviation from the usual routine.

474 FIRST STREET.

ALCOHOL AND IODINE AS GERMICIDES.

BY ALBERT COMSTOCK, M. D.,
Brooklyn, New York.

Both alcohol and iodine have been for some time much esteemed in surgery. Alcohol holds a longer record of service than iodine and has been used more than any other substance for skin disinfection, as well as for instruments and dressings. Of late years iodine has received the greatest favor as a skin antiseptic, and forms part of the regular operating room and surgical dressing room armamentarium in most of our hospitals. In many contagious and infectious wards, the physician in making his rounds is fully satisfied with moistening a towel with alcohol and lightly wiping his hands on it.

With a view to definitely ascertaining and demonstrating the efficacy of those various preparations, a number of experiments were done by me in the laboratory of one of the medical colleges of this city. The organisms against which the antiseptics were to be used were cultured in bouillon for forty-eight hours. Then loops of sterile thread were immersed in the varied bacterial cultures, and exposed to the antiseptics for different periods of time. As the results were very similar in the loops exposed for varying lengths of time, no distinction will be made in the tables shown. After being immersed in the antiseptics the loops of thread were cultured on sterile agar, and observations made every twenty-four hours as to presence and amount of growth.

Culture tubes of each organism, made from the same cultures as the loops, were run, and also controls of the agar, to prove its sterility.

The organisms experimented with were *Bacillus subtilis*, *Bacillus anthracis*, *Bacillus coli communis*, *Staphylococcus pyogenes aureus*. A moment's consideration of this group will show it to be one composed of representative organisms, bacilli, spore bearers, cocci; also germs possessing varying degrees of resistance to germicidal substances. The antiseptics employed were:

Ethyl alcohol 95%.

Ethyl alcohol 70%.

U. S. Pharmacopœia tincture of iodine.

Tincture of iodine and alcohol, equal parts.

Tincture of iodine and water, equal parts.

Having briefly considered the technic employed, we may now turn our attention to the results:

	Alcohol 95%.	Alcohol 70%.	Iodine tinc.	Alcohol and iodine.	Water iodine.	Sterile agar.	Inoculated loops.
<i>Bacillus subtilis</i> .							
24	+++	++	0	0	0	0	+++
48	+++	+++	0	0	0	0	+++
72	+++	+++	0	0	0	0	+++
<i>Bacillus anthracis</i> .							
24	+++	+++	0	0	0	0	+++
48	+++	+++	0	0	0	0	+++
72	+++	+++	0	0	0	0	+++
<i>Bacillus coli communis</i> .							
24	0	+++	0	0	0	0	+++
48	0	+++	0	0	0	0	+++
72	++	+++	0	0	0	0	+++
<i>Staphylococcus pyogenes aureus</i> .							
24	+++	+++	0	0	0	0	+++
48	+++	+++	0	0	0	0	+++
72	+++	+++	0	0	0	0	+++

Key: +++ Very luxuriant growth.
 ++ Rich growth.
 + Moderate growth.
 0 Slight growth.
 0 No growth macroscopically.

The results of this series of experiments are apparently very different, especially in regard to alcohol, from what we might have expected. It is evident that the only organism at all inhibited in its growth by the alcohol was *Bacillus coli communis* and here only an inhibition was noted, the growth being very perceptible in three days. It is of interest, too, to see that the stronger alcohol was evidently the most efficient in the case of this organism. This also is rather contrary to general opinion. The natural inference from the results of these experiments seems to be:

1. Alcohol does not possess efficient antiseptic properties.

2. Iodine, either in the tincture, or equally diluted with alcohol or water is a very efficient germicide. It is interesting to note that the iodine worked equally well when diluted with water. This is contrary to most teaching, which tells us that to be most efficient, iodine must be used in a medium free from moisture.

Further experiments were made with alcohol to determine its efficiency as a germicide when exposed for a long period of time. *Bacillus anthracis*, *Bacillus subtilis*, and *Staphylococcus pyogenes aureus* were cultured for twenty-four hours on agar. Excellent cultures of all were obtained. The tubes were then filled with ninety-five per cent. alcohol and allowed to stand so for thirty minutes, one hour, and one and a half hour respectively for three tubes of each culture. All tubes were then incubated, and the following observations made at the end of twenty-four hours:

Exposure	30 min.	1 hr.	1 1/2 hr.	Control.
<i>B. anthracis</i>	+++	+++	+	+++
<i>B. subtilis</i>	+++	+++	+	+++
<i>Staph. pyogenes aureus</i>	+++	+++	+	+++

This series of observations suggests that alcohol used in ordinary lengths of exposure possess little or no inhibitory action. In the case of *Staphylococcus pyogenes aureus* indeed, some inhibition was noted, but here it is only an inhibition, so that we cannot admit of its being called a germicide.

DISINFECTION OF SUTURES.

Alcohol was also tested as to value in disinfecting sutures of catgut. *Bacillus subtilis*, analogous to *Bacillus tetani* in its characteristics, was inoculated on to catgut suture threads. The threads were then exposed to ninety-five per cent. alcohol for periods of three, six, and twenty-four hours,

mur and muscular atrophy. She was last examined in March, 1912, when there was still a difference in the circumference of the legs, the right one being about three quarters of an inch less than the left. The heart sounds were strong, and a loud murmur could still be heard.

This case presented symptoms which are not often met with in cases of chorea

1. The severity of the symptoms in general.
2. The high temperature, which could not be accounted for by any obvious complication.
3. The disturbance of respiration and pulse.
4. The psychic manifestations.
5. The paralysis. Thiemich (3) considers paresis to be a rare phenomenon in choreic patients.
6. The trophic changes.
7. Muscular atrophy. Rondeau (1) has noted atrophy to be a very rare complication of chorea.

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4101 TWELFTH AVENUE.

THE MENACE OF ANTIMEDICAL LEGISLATION.*

By WILLIAM J. CRUIKSHANK, M.D.,
Brooklyn, New York.

In my official capacity, I sent a copy of the subjoined letter to each member of the Legislative Committee of the Medical Society of the County of Kings, and I trust that the request made therein has been generally complied with. We have only our own quiescence to blame for the ground lost in the past, and we must fight to regain it.

LEGISLATIVE COMMITTEE of the MEDICAL SOCIETY OF THE COUNTY OF KINGS

Dr. WILLIAM J. CRUIKSHANK, Chairman
102 Fort Greene Place

BROOKLYN, N. Y., January 7, 1915.

Dear Doctor:

This committee held its inaugural meeting on Saturday, January 2, 1915. It is composed of thirty-one physicians, one representing each assembly district and one representing each senatorial district.

Following are the names of the members: Gordon Gibson, Daniel C. Mangan, James M. Downey, John S. Reed, William F. Koerner, Christopher D. Kevin, Jacob M. Goldberg, Silas C. Blaisdell, Francis I. Drobinski, John J. Sheehy, Robert E. Coughlin, Lewis W. Pearson, Martin L. Bodkin, James C. Hancock, James P. Glynn, Joseph A. Kene, Paolo Virdone, William C. Haupt, Edward V. McGoldrick, Albert E. Gilmartin, Burt D. Harrington, Harry W. Lincoln, Simon R. Blatteis, John A. Lee, John B. Meury, Rudolph F. Herriman, Samuel A. Gluck, George H. Reichers, Charles J. Hettesheimer, Maurice J. Dattelbaum, F. James Kirk. There will be an advisory committee appointed also.

I am credibly informed that many of the members of our State legislature have already been approached, and their vote and influence solicited, by persons interested in the enactment of special legislation bearing on the right to practice medicine within the State of New York. Thus it will be seen that, in the interest of, and for the protec-

tion of the health of the public, it becomes the duty of this committee to act immediately. Therefore, each member of our legislative assembly committee is requested, without further delay, to make the personal acquaintance of the assemblyman representing his assembly district, and each member of our legislative senate committee is urged to become acquainted with his particular senator, familiarizing him with the functions and aims of this committee, its desires, views, and hopes regarding medical legislation, and earnestly requesting his cooperation. Each legislator should be definitely informed that, in the interest of the public health, the medical profession of this community, especially the Medical Society of the County of Kings, is unalterably opposed to the conferring upon persons who have not properly complied with the existing laws governing such matters, the right to care professionally for the sick. They should be made to understand especially that this opposition now extends, and will always extend, to attempts at intrusion upon the Practice of Medicine Act as it now appears upon the statute books, by so called mental healers and all other pseudopractitioners, their representatives, advocates, and followers, and that this committee, and the body which it represents, will vigorously resist, with combined effort, energy, and power, all such attempts.

As soon as possible after you have thus interviewed your legislative representative, will you be good enough to acquaint me with the result of that interview in order that I may incorporate the information so received in my report to our society?

WILLIAM J. CRUIKSHANK, Chairman.

For the profession of medicine, with its unparalleled history of self abnegation and scientific achievement, to stand in the presence of retrogression, with voiceless lips; to remain silent and inactive while selfish influences are persistently at work in the interests of mischievous special legislation, legislation the enactment of which would place human life in jeopardy; would be evidence of an appalling lack of appreciation of duty to the community, an inertia almost inconceivable. There could be offered no reasonable excuse for such a lack of action. The leaders in our profession can no longer plead in extenuation, ignorance of the existence of these pernicious legislative attempts, nor can the rank and file further shirk their responsibility upon that ground, for these repeated efforts have become notorious. Indeed, it is a common scandal that the cult called mental healers or Christian scientists, while attempting to place upon our statute books laws authorizing its members to care professionally for the sick, actually denies the existence of disease, insisting, on the authority of its founder, that there is no such thing as pain, hemorrhage, tuberculosis, cancer, and the like, that there is no contagion and therefore no necessity for sanitation, thus, in the extremity of delusion and for personal gain, dragging suffering humanity back to the middle ages, back to superstitions low and debasing, when disease and cure alike were thought to be dependent upon supernatural causes. This they would do by warrant of law. When viewed in the light of modern knowledge and integrity of purpose, such legislative attempts are not only evidences of retrogression, they are monstrously insane and cunningly self interested, requiring concerted opposition and restraint. Of course, the time and energy required for this opposition, taken as it must be from legitimate professional work, comes as an annoyance and even as a hardship to many of us, but this sacrifice must be made. The relevancy of this latter statement, will doubtless be

*An address made at the regular meeting of the Medical Society of the County of Kings, Tuesday evening, January 19, 1915, by the author as chairman of the Legislative Committee, in reference to the plans made by the committee, and the policy to be adopted by the society, in combating attempts at legalizing quackery.

appreciated, when we recall that the propitiation and commercializing of supernaturalism, in connection with the cause and treatment of disease, is one of the darkest pages in the history of civilization. It held the sick and suffering of the European world in a deathlike grip, retarding natural progress toward rationalism in medicine, for a thousand years. So successfully and completely did it resist the struggles of scientific endeavor, that all through that long medieval night not a single step forward was taken.

And so I insist that the great profession of medicine, with its splendid history of the conquest of disease, shall not remain silent in the presence of attempts to legalize the treatment of carcinoma, puerperal sepsis, appendicitis, diphtheria, and the like, by medieval supernaturalism; its honored members shall no longer combat such pernicious attempts by indulging in solemn platitudes and sophistic quibbling. The profession which, under leaders like Virchow, Pasteur, Koch, and Lister, has waged such relentless war upon disease, shall not raise a flag of truce to so dangerous an enemy to public health as the teachings and practices of Christian science. Who of us will sit idly by and allow the State to sanction ignorance, superstition, and greed, masked as remedial agents and therapeutic measures for the relief of the sick and suffering? Who of us will tolerate such a jeopardizing of human life?

In the performance of a sacred duty to the community, in the interest of public health, the Legislative Committee of the Medical Society of the County of Kings, with one accord, bespeaking the aid of every member of the society and of good citizenship everywhere, pledges its best endeavor in opposing these ignorant and atrocious attempts at legalizing quackery and charlatanism.

102 FORT GREENE PLACE.

Therapeutic Notes.

Treatment of Trachoma by Grattage.—L. Schwartz, in the *American Journal of Tropical Diseases and Preventive Medicine* for July, 1914, states that he has been performing grattage in cases of chronic benign trachoma for two years, and considers that, in virtue of removal of granulations of trachoma and underlying lymphoid tissue, the method constitutes a more rational surgical treatment of trachoma than the simple expression of the granulations ordinarily employed. In a series of sixteen cases which he reports, all seen regularly after the treatment for a period sufficient to permit of correct conclusions, nine patients were entirely cured by the grattage, the complete destruction of the lymphoid tissue being manifest in a smooth, white, fibrous surface on the lid and clearly outlined conjunctival vessels, with cessation of discharge. Two other cases, in which the conjunctiva showed white scar areas mixed in with reddish areas of lymphoid tissue, are considered to have been rendered quiescent and noncontagious, though liable to reinfection and relapse. Two additional cases were improved, the symptoms abating, while the remaining three

were not improved by the treatment as previously applied. On the whole, Schwartz considers that grattage, properly done, greatly shortens the period required to cure. One operation effects a cure in about fifty per cent. of cases, and repeated operations cure even more. In performing the operation, it is best to administer a general anesthetic, as cocaine may tend to produce ulceration by its action on the corneal epithelium. A rubber or horn spatula should be held over the eyeball to prevent its being injured during the scrubbing process. The conjunctiva is incised in parallel rows, at right angles to the margin of the lid, and about two mm. apart, and then thoroughly scrubbed with gauze spread over the index finger, until a smooth surface is left. After the operation, an ice bag must be continuously applied night and day. It is best to have the ice bag tied over the eyes, and a nurse to watch so that it is not displaced during sleep. Despite the ice bag, corneal opacities may result in patients with narrow commissures, owing to blocking of the lymph supply of the cornea by the swollen conjunctiva. To relieve this and prevent sloughing, a canthotomy may be necessary in serious cases, but the swelling usually subsides under atropine and an ice bag. Symblepharon is avoided by opening the lids and gently wiping away the secretions every two or three hours during the first forty-eight hours after the operation. The patients should not be sent home until the lids are entirely healed and cicatrized, as the unhealed surface may be reinfecting by contact with other members of the family having trachoma.

Treatment of Hypertrophied Thymus.—Weil, in *Presse médicale* for June 13, 1914, it is stated, had excellent results with the Röntgen ray in cases of thymus enlargement. The dose, according to his observations, should be high, six to seven H. units of the rays being preferably administered, through an aluminum screen four mm. thick. In each of the eight cases treated by Weil, a complete cure, confirmed by radiography, was obtained.

Treatment of Keloids.—Gallois and Japiot, in *Lyon médical* for July 26, 1914, report the case of a man who, after a severe burn, developed large keloids on the right lateral aspect of the trunk, the palmar surface of the right forearm, and most of the left upper extremity, with limitation of motion at the left elbow. The keloids projected about two cm. above the level of the surrounding skin, and were of a vivid red or purplish color, with irregular surfaces and margins. Two different forms of treatment were tried in different areas for comparative purposes, the lesions on the body and left arm being treated with repeated deep incisions, while the right arm was dealt with by means of the x ray. The rays were filtered through 0.2 mm. of aluminium, and a dose of five H units was administered monthly. After three sittings the condition was already greatly improved, the elevation of the keloids diminishing and the red color giving way to a pink or whitish tint. The cicatricial contraction at the elbow was also loosened. The two kinds of treatment were observed to yield practically the same satisfactory results. There was no evidence of a predisposing cause of keloid, such as tuberculosis, in this case.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal
and The Medical News.*A Weekly Review of Medicine.*

EDITORS

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Address all communications to
A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,
66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transporta-
tion through the mail as second class matter.

Cable Address: Medjour, New York.

NEW YORK, SATURDAY, FEBRUARY 13, 1915.

A BROOKLYN NUMBER.

An immense number of Brooklynites still think in terms of Brooklyn rather than New York, and this attitude is reflected by many residents of Long Island outside of the big borough. Nevertheless, when we first broached the idea of a special Brooklyn issue of the JOURNAL, thinking of this mental bias, narrow or patriotic according to the point of view, and desirous of appealing to the natural pride of one section of the city in its achievements, we were truly astonished at the enthusiasm with which the idea was welcomed. There seems to be a special pleasure in reading the work of a friend one has known long and intimately, while the worker himself seems to desire particularly the approbation and sympathy of his immediate associates. Apart from this feature, our readers will find this issue quite as good from the practitioner's viewpoint as the usual one which takes in communications from all parts of the country. Some of the contributions were written especially for the JOURNAL and some of the illustrations drawn for our sole use. It is a handsome and useful number of the JOURNAL, one to stimulate the pride of New Yorkers in a periodical named for our city, a publication that no physician in the metropolitan area should be without. The special plan having been so successfully carried out, we hope to apply it in time to other large centres. It gives one a new idea of the vastness and resources of New

York to inspect this collection of scientific and historical data from a section of the city which contains less than half the total population.

OPHTHALMIA NEONATORUM.

The results of prophylaxis in this affection, a wholly preventable one, have been pronounced among the most gratifying in the history of medicine; yet, notwithstanding the active efforts of the ophthalmologists, the resolutions passed by medical societies, and the action of health boards, the disease is still decidedly more prevalent than it should be. Its ravages constitute a trite story, but from time to time the attention of the profession and the general public should again be called to them. A few years ago it was estimated that there were more than 300,000 blind persons in Europe, and it was shown from asylum reports that from thirty to fifty per cent. of the inmates owed their affliction to this disease. In a paper read before the Medical Society of the State of New York in 1912, de Schweinitz stated that while no complete statistics showing the prevalence of the disease were available, an approximate idea might be obtained by studying the admissions to schools for the blind, and that in any carefully tabulated list of the causes of blindness, ophthalmia of the newborn far exceeded in prominence any of the other etiological factors; the proportion being approximately thirty-six per cent.—rising in some countries to fully forty per cent. and rarely, if ever, falling below twenty-five per cent. Naturally the economic loss from this source is only a secondary consideration, but it may well be taken into account, and de Schweinitz mentioned that in the States of New York, Pennsylvania, Massachusetts, and Ohio the annual expenditure of public funds for the blind in excess of the cost of educating seeing children, amounted to some \$150,000, and it was evident that the cost of blindness throughout the entire United States must be enormous.

More recently, Dr. A. W. Tallant, at a meeting of the Philadelphia Pediatric Society, asserted that the records of asylums for the blind in this country show that the proportion of their inmates whose condition is attributable to ophthalmia of the newborn is not falling off to any great extent. A special feature to which Doctor Tallant directed attention was the frequency and importance of secondary cases; those which appear after the fifth day and are not the result of inefficient prophylaxis at the time of birth. The number of these could be greatly diminished by the repetition of prophylactic treatment at short intervals during the puerperium where gonorrhea is suspected in the mother. If any further excuse is needed for bringing up this sub-

ject once more, it may be found in the fact that the New York health department has lately announced that, from unofficial reports coming from physicians and others who have had an opportunity of observing conditions in institutions for eye diseases and maternity hospitals, it is quite evident that the department has not been receiving full reports of cases; and from its own investigations the department is convinced that many physicians also are not reporting their cases. It does not reflect credit on the profession that the reporting of these cases is generally observed by midwives, among whom the enforcement of the department rules has resulted in the almost universal use of an official silver nitrate prophylactic solution. Since the control of midwives was undertaken in 1907, definite efforts have been made by the department to check the disease, as well as to enforce the reporting of cases by physicians and institutions, and it now makes the announcement that hereafter those guilty of violations of its regulations will be vigorously prosecuted.

DIET AND CANCER.

The influence of diet on the causation of various diseases has been widely discussed within recent years. The late Dr. Jonathan Hutchinson continually asserted that leprosy was induced mainly by the ingestion of tainted fish. The origin of other diseases has been traced to the undue consumption of a certain article of diet; for instance, the weight of evidence goes to show that pellagra and beriberi are due to diet. So far as cancer is concerned, many investigators have endeavored to prove, and in some cases with seeming success, that diet of a certain kind, or a superfluity of food predisposes to cancer. Dr. W. Roger Williams (*The Natural History of Cancer*, 1908) has been the chief exponent of the theory and he certainly has marshalled many facts in support of his contention. Briefly, Williams's views may be summarized somewhat as follows: The prevalence of and mortality from cancer are lowest in those lands in which the struggle for existence is most severe, the population most dense, the tuberculosis mortality highest, the birth rate highest, the infantile and general mortality highest, the average duration of life shortest, and in which sanitation is bad. In short, Williams argues that in cities in which existence is passed at its greatest stress, obviously among the working classes, the cancer death rate is at its lowest, and that in agricultural districts whose inhabitants lead a comparatively easy life, the mortality from the disease is highest. The cancer death rate, in fact, rises in proportion to comfortable living and high feeding.

In the same line of argument is that which places on excessive meat eating, and especially frozen or chilled meat, on salt, tomatoes, coffee, alcohol, the origin and spread of cancer. More recent studies of the disease, however, appear distinctly to cast doubt on such views. Investigations which have been conducted in countries in which meat and alcohol are not much used by the natives as articles of diet, have demonstrated that cancer is fairly frequent. The German Cancer Committee working in German East Africa, German West Africa, Samoa, and the South Sea Islands, has reported that cancer appears to be more or less prevalent in these countries. The British Foreign, Indian and Colonial Offices have come to practically identical conclusions. Indeed, in parts of India and in Burma, cancer is somewhat common. Thus in various countries, tropical mainly, in which the frugal life is perforce lived with the greatest degree of intensity, and in which the consumption of meat and alcohol is almost unknown, cancer, if not rife, exists to a considerable degree. In Japan also, cancer is more prevalent by far than was at one time supposed. Again, the cooking of vegetables has been held to be responsible for the increase of cancer, but on close dissection this theory does not seem to be tenable.

It is probably true that the malady flourishes more among the inhabitants of highly civilized, prosperous, well fed countries. On the other hand, it must be borne in mind that it is more closely looked for and detected in such lands. Undoubtedly, if the means for observation and diagnosis were as accurate and as carefully carried out in the poverty stricken countries of the Far East or of the South Sea Islands, cancer would be found to be much more frequent than is now imagined. This is not to say that cancer is not more common in rich countries than in poor, for statistics point in that direction; but it may be stated with much assurance that the case for diet as a main cause of cancer is "not proven."

THE PSYCHIC FACTOR IN VENTILATION.

Ventilation has led sanitarians a long will-o'-the-wisp chase; air has been let into rooms at the top and let out at the bottom, forced in at the bottom and extracted at the top, driven in at one end and sucked out at the other, and each method has been "highly recommended," at least by dealers in the special fixtures needed. The air for the room has been filtered and moistened, even washed and reheated "with success." Air deflectors have been acclaimed as the last word in ventilation, and revolving fans have been installed and set going "with

good results." Windows have been opened at the top, at bottom, and in the middle, and window tents have been devised. Windows have been removed, and walls abandoned, and still we have the problem of ventilation.

One school principal finds his pupils do their acme of work when he forces a cloud of steam into the study room, other investigators find that moisture, other than a moderate amount, has little to do with the capacity for work, while the general experience has been that much moisture makes higher temperatures less tolerable. It has been found that open windows do not renew the air of rooms so rapidly as was once believed, and it has been shown that, except under rare conditions, we rebreathe much of the air we have just expired, even when resting on a sleeping porch. An animal, domestic or wild, in cold weather buries its nose in the depths of its furry coat, and the man on a sleeping porch or in a window tent pokes his head under the blanket. Both rebreathe, under such conditions, a high percentage of their own breath, but both survive and flourish.

The psychic element obviously enters much into our fads in ventilation, and about the only thing that crops out as of permanent moment in all ventilating plans is that of temperature, with perhaps cleanliness a near second. No ventilating appliance works if the thermometer reads too high, while all of them work if the mercury remains sufficiently, but not too low. Circulation of air amounts to almost the same thing as lower temperature, for all air below body temperature when in motion tends to extract heat more than still air if of the same temperature. Aside from the psychic effect of the presence of new contrivances or the use of new methods, the solving of the problem of ventilation so far lies in a regulation of the temperature of the air to the age, condition, and activities of the persons who occupy the room. The more air space for each person and the more pure air delivered to each the better, but no matter what the quantity of the air, the temperature will have much to do with the activity of the collection of human protoplasm it envelops.

THE ECONOMICS OF PRACTICE.

From an economic point of view it is preferable to bring the patient to the physician rather than to have the physician visit the patient. In the city the office fee is ordinarily from one fourth to one half that charged for a visit. Even at the much lower rate for office consultations they are looked upon as relatively more profitable. The patient can usually be treated in a hospital more economically than he can in his residence, and receive better ser-

vice from both the physician and the nurse and at a lower rate. This is made possible by the economy of time by physician and attendants. A physician can see six patients in one hour in the hospital; it will take him from half an hour to two hours to call on a single patient at his residence. It is merely a matter of simple proportion to determine the ratio of the fee for a hospital visit to that for a residential visit. The advantages which the hospital offers over the home as a place for treatment of the sick are great even aside from monetary considerations, and when we find in addition that treatment in the hospital is more economical, we can readily understand the growing popularity of the latter. To be really economical, this treatment must, of course, be on a fairly large scale, otherwise the overhead charges and the interest on investment more than counterbalance the economy.

The plan of furnishing a private hospital by a group of doctors in a given rural district, seems to have much in its favor. We have frequently heard rumors of the great success of such hospitals, but details are lacking; the rumors concerned the moderate fees, which the patients were apparently glad to pay, the use of the hospital by any regularly licensed physician in good standing, not necessarily a "founder," the growing liking for the hospital by the public, which speedily discerned its superiority to the ordinary home for surgical and even obstetrical work, and other attractive matter. Were these rumors unfounded? We should be glad to publish an illustrated account of such an institution, if some attending surgeon can tear himself away from his pleasant visits thereto long enough to write one.

SEWAGE DISPOSAL ON TRAINS AND VESSELS.

The disposal of human excreta on railway trains and on vessels plying on inland waters, especially the great lakes, has for a long while been the subject of comment among sanitarians. The system, or lack of it, at present in use is highly unsatisfactory. It is acknowledged by all that there are potential dangers involved in discharging untreated urine and feces into the waters of the lakes and along the lines of our thousands of miles of railways. Just how much actual harm does result it would be difficult to say, but the practice, as it exists, is not easy of control, and some better methods should be substituted.

In a recent issue of the *Public Health Reports*, Frank offers a method which appears to be practical. He has devised an ingenious apparatus for the treatment of the excreta by heat, which can be installed and operated on trains and vessels at moder-

ate cost. While steam was used by him in his experiments with the apparatus, almost any form of heat may be substituted, if desired. The material is heated to 100° C., and discharged automatically.

In testing out the device, he found it worked well mechanically and delivered an effluent which, on bacteriological analysis, proved safe. If after wider experimentation this apparatus should prove as practical and efficient as it now appears to be, it may solve the problem satisfactorily to all concerned.

THE DESTRUCTION OF RATS.

To the physician the destruction of rats and mice is important mainly from the role these vermin play in the transmission of disease. From a purely economic point of view, however, the wiping out of these rodents is of almost as much importance and consequently may well be of interest to the physician as well as to the layman, particularly as he may be consulted as to methods of destroying them.

That this is by no means an easy task is indicated by a report from Doctor Akin concerning the eradication of a plague focus in New Orleans, in the recent epidemic there. Two plague rats having been captured in an old stable and junk warehouse, the destruction of the building was determined upon. The portion used as the stableman's residence was demolished first, and when the floor was removed fifty-four rats were killed, twenty of them being plague infected.

Comment was made to the effect that in spite of the burning of eighty pounds of sulphur to not more than 4,200 cubic feet of room space (giving sixteen per cent. sulphur dioxide), no rats had been compelled to leave their hiding places beneath the floor, owing to its imperviousness to the diffusion of gas.

It seems evident that disinfection as a means of destroying such animal life is not a firm reed to lean upon, especially when dealing with a disease like plague. There is but one way to be certain that rats have been destroyed and that is by seeing the dead bodies of the animals. After they have been destroyed, then is the time to protect the building from further invasion. To rely on gaseous disinfectants to accomplish the desired results, is to give a feeling of false security; more strenuous methods only can be effective.

News Items.

The New Greenpoint Hospital.—The new \$800,000 hospital, situated in the Greenpoint section of Brooklyn, will be opened for the reception of patients on Monday, February 15th. Dr. Raymond Clark has been appointed physician in chief, Dr. John E. Jennings, surgeon in chief, and Dr. Frederick C. Holden, obstetrician and gynecologist in chief.

Tri-State Medical Society.—The annual meeting of the Tri-State Medical Association of Virginia and the Carolinas will be held in Charleston, S. C., on Wednesday and Thursday, February 17th and 18th, under the presidency of Dr. Edward C. Register, of Charlotte, N. C.

Boston Milk and Baby Hygiene Association.—There has been an increase of nearly five hundred babies under the care of this association over the corresponding period a year ago. The total number under the supervision of the doctors and nurses of the association is 1,815.

French Surgeons at the Front.—It is reported that of the 14,000 surgeons in the French Army 6,500 were at the front. At the end of December, 93 had been killed, 260 wounded, 440 were among the missing, while 155 had been mentioned in orders for gallant conduct on the field of battle.

Philadelphia Genitourinary Society.—The following officers have been elected to serve for 1915: President, Dr. H. R. Loux; vice-president, Dr. Thomas R. Neilson; secretary and treasurer, Dr. B. A. Thomas; librarian, Dr. W. H. Mackinney; executive committee, Dr. Alexander A. Uhle, Dr. W. H. Kinney, Dr. Alexander Randall, and Dr. Charles S. Hirsch.

Amsterdam City Medical Society.—At the annual meeting of the Medical Society of the City of Amsterdam, N. Y., held on the evening of January 22d, the following officers were elected: President, Dr. R. R. Canna; vice-president, Dr. David Wilson; secretary and treasurer, Dr. Melvin R. Woodhead; trustees, Dr. J. S. Walton, Dr. F. A. Husted, and Dr. E. C. L. Porto, for three years, and Dr. Julius Schiller for one year; pathologist, Dr. Julia Qua; member of executive committee, Dr. James B. Conant.

Doctor Stiles to Lecture on Medical Inspection of School Children.—The ninth Weir Mitchell lecture of the College of Physicians of Philadelphia will be given on Tuesday, February 16th, by Dr. C. Wardell Stiles, of the Rockefeller Hookworm Commission. The subject of the lecture will be an Experiment from the Standpoint of Applied Zoology in the Medical Inspection of School Children as a Basis for an Intensive Public Health Campaign. Physicians are invited to attend.

To Enlarge the Swedish Hospital, Brooklyn.—Plans are being prepared by the Swedish Hospital Society, of Brooklyn, for the erection of an extension to the present hospital building at Rogers Avenue and Sterling Place, in order to relieve congestion and make the institution more modern. It is estimated that about \$30,000 will be required. The proposed building will be two stories in height, with a basement, and a solarium on the roof. It will be fully equipped with all modern appliances.

The Harvey Society Lectures.—The ninth lecture in the course will be given on Saturday evening, February 27th, by Professor R. R. Bensley, of the University of Chicago, on the Structure and Relationship of the Islets of Langerhans and Criteria of Histological Control in Experiments on the Pancreas. As previously announced, Professor John A. Fordyce, of Columbia University, will deliver the eighth lecture on Saturday evening, February 13th, his subject being Some Problems in the Pathology of Syphilis.

Foundation for Medical Research at the University of Minnesota.—A plan of Dr. William J. and Dr. Charles H. Mayo, of Rochester, Minn., to establish a \$1,000,000 foundation for medical research and to place the foundation in the hands of the University of Minnesota Board of Regents, under certain restrictions, is under consideration by the university Medical College Advisory Board. It is proposed that the interest from the fund be used in research work at Rochester, open to graduate university medical students. Details of the plans are being worked out.

Postgraduate Instruction in Contagious Disease.—The Department of Health of the City of New York has under consideration the inauguration of a series of clinics in contagious diseases, to be held in the hospitals of the health department and to be open to graduates in medicine practising in the city of New York. The relation of such a course to preventive medicine is obvious. In arranging for the course, it will be helpful to know to what extent physicians will interest themselves. Practitioners who desire to take advantage of this opportunity, are requested to communicate promptly with the commissioner of health.

Child Betterment and Social Welfare.—This is the name of a useful monthly publication published at 60 West Washington Street, Chicago, and edited by Dr. G. Frank Lydston. The subscription price is one dollar per annum. Among the contributing editors we note the eloquent Dr. George F. Butler, of Kramer, Ind. The periodical is issued by the Child Betterment Bureau, a corporation regularly chartered by the State of Illinois. It has nothing to do with any philanthropy, nor any institution of any kind, either in Illinois or any other State, nor with any academic theory of uplift. It is a practical exponent of physical and mental health among children. It accepts no money other than from subscriptions to and sales of the magazine. It is strictly a publication for spreading knowledge—in its own field a competent and efficient organ of education and information.

Dinner to Surgeon General Gorgas.—The New York Division of the Medical Reserve Corps, United States Army, gave a dinner in honor of Surgeon General William C. Gorgas at the Hotel McAlpin, New York, February 6th. Nearly one hundred members of the organization were present. The attendance included about twenty regular medical officers stationed in and about New York. Dr. Reynold Webb Wilcox presided, and the speakers were Surgeon General Gorgas, Colonel L. M. Maus, Chief Surgeon of the Eastern Department, Colonel Charles Richard, president of the Army War College, Washington, Dr. John A. Wyeth, president of the New York Polyclinic, Dr. George Henry Fox, and Dr. W. M. Brickner.

The organization of the Medical Reserve Corps is in a very healthy condition, and it holds monthly meetings in the Twelfth Regiment Armory where the members receive instructions in the duties of the medical officer.

Conference on Medical Legislation and Medical Education.—The eleventh annual conference of the Council on Health and Public Instruction and the Council on Medical Education of the American Medical Association will be held in Chicago, at the Congress Hotel, on Monday and Tuesday, February 15th and 16th. Among the subjects to be discussed at this conference are medical expert testimony, the prevention of ophthalmia neonatorum, a model bill on State public health organization, and State regulation of those who treat the sick. An interesting feature of the second day's proceedings will be a symposium on higher degrees in medicine, among those taking part being Mr. George E. Vincent, president of the University of Minnesota; Mr. Harry Pratt Judson, president of the University of Chicago; Dr. Milton J. Rosenau, of Harvard University; Mr. M. C. Hoad, of the University of Michigan; Dr. Frank C. Todd, of the University of Minnesota; Dr. Edward Jackson, of the University of Colorado, and Dr. J. M. T. Finney, of Johns Hopkins University. Dr. W. L. Rodman, of Philadelphia, president-elect of the American Medical Association will present a plan for facilitating more general licensure.

Help for Belgian Physicians.—Dr. Lewis S. McMurry, of Louisville, Ky., and Dr. Charles A. L. Reed, of Cincinnati, have consented to become members of the Committee of American Physicians for the Aid of the Belgian Profession. At the request of the treasurer, Dr. F. F. Simpson, of Pittsburgh, the executive committee has arranged to have the accounts audited quarterly; the first audit will be made about March 20th. Contributions to the fund for the week ending February 6th are announced as follows: Dr. Willard Bartlett, St. Louis, \$10; Dr. M. Manges, New York, \$15; Dr. G. D. Hale, Passed Assistant Surgeon, United States Navy, San Francisco, \$10; Dr. Alfred Wiener, New York, \$10; Dr. John Woodman, New York, \$5; Dr. Robert T. Frank, New York, \$10; Cash—B, Pittsburgh, \$10; Dr. R. O. Raymond, Flagstaff, Ariz., \$10; Dr. A. Hymanson, New York, \$5; Dr. Mazyck P. Ravenel, Columbia, Mo., \$15; Oklahoma State Medical Association, Muskogee, Okla., \$100; Dr. H. H. Sherk, Pasadena, Cal., \$25; Dr. Charles Lee King, Pasadena, Cal., \$20; Dr. James Williamson, Philadelphia, \$5; Dr. J. S. Kauffman, Blue Island, Ill., \$5; Dr. John P. Treanor, Dorchester, Mass., \$10; The Clinical Club of Albany, Albany, N. Y., \$25; Dr. Thomas J. Watkins, Chicago, \$50; Dr. H. E. Oesterling, Wheeling, W. Va., \$10; Dr. Leslie W. Schwab, Chicago, \$5; Dr. A. Howard Smith, Marietta, Ohio, \$5; Dr. Woodson H. Taulbee, Maysville, Ky., \$5; total, \$362; previously reported receipts, \$2,166; grand total, \$2,528.

Animal Experimentation and Medical Research.—The Pennsylvania Society for the Protection of Scientific Research has inaugurated a campaign of publicity and education concerning medical research and animal experimentation. In this campaign the society hopes to have the moral and financial support of the medical profession of Pennsylvania, and in order to bring this about a class of members has been established which will be known as contributing members, which includes those who contribute ten dollars or more to further the object of the society. Dr. William Pepper, 1811 Spruce Street, Philadelphia, is chairman of the committee on finance and membership.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, February 15th, Philadelphia Clinical Association, Medical Society of the Woman's Hospital; Tuesday, February 16th, West Branch of the County Medical Society; Wednesday, February 17th, Section in Otology and Laryngology of the College of Physicians, Northwestern General Hospital Medical Society, Mount Sinai Hospital Clinical Society; Thursday, February 18th, Section in Ophthalmology of the College of Physicians, Northeast Branch of the County Society; Friday, February 19th, Southeast Branch of the County Medical Society and the Jefferson Hospital Clinical Society.

Doctor Brannan Retires as Chairman of the Medical Board of Willard Parker and Riverside Hospitals.—At the January meeting of the medical board of the Willard Parker and Riverside Hospitals, Dr. John Winters Brannan, president of the board, announced after his nomination for reelection, that, owing to his many engagements, it would be impossible for him, greatly to his regret, to continue in office during the ensuing year. Thereupon the following resolution was unanimously adopted by the board, and spread upon the minutes:

That the members of the medical board of the Willard Parker and Riverside Hospitals regret the decision of Dr. John Winters Brannan not to continue his duties as chairman, in which office, for many years, he has rendered faithful and valuable service in the interests of the hospitals and has endeared himself to his associates through his gracious tact and excellent judgment.

Dr. John H. Huddleston has been elected president to fill the vacancy caused by Doctor Brannan's retirement. Doctor Brannan will continue as consulting physician.

Another Outbreak of Foot and Mouth Disease.—As a result of the discovery of foot and mouth disease in Chicago, Indianapolis, Louisville, Buffalo, Cincinnati, Jersey City, Pittsburgh, and Columbus, Ohio, the United States Department of Agriculture on February 6th instructed its inspectors to close yards in those cities to interstate shipment of live stock, after the disposal of shipments in transit. Dr. Marion Imes, who has been in charge of the Federal inspectors in Ohio working to stamp out foot and mouth disease, has been relieved from work in that State and has been sent to Kansas, where an epidemic of the disease has broken out. The Oklahoma State Board of Agriculture has instituted a rigid live stock quarantine affecting all States except Texas and New Mexico. Dr. Theobald Smith, professor of comparative pathology at Harvard University, who went to Illinois for the purpose of holding a conference with members of the staff of the college of agriculture of the University of Illinois, recommends that the State be divided into districts with a scientific veterinarian at the head of each district as the best way to prevent outbreaks of foot and mouth disease.

Personal.—Dr. Frank Christian Becht has been appointed assistant professor in the department of physiology of the University of Chicago.

Dr. Milton J. Rosenau, professor of preventive medicine at Harvard University, has been elected president of the Massachusetts Association of Boards of Health.

Dr. Thomas Darlington, of New York, secretary of the welfare committee of the American Iron and Steel Institute, was the principal speaker at the formal opening of St. Elizabeth's Hospital, Youngstown, Ohio, on Monday evening, February 1st.

Dr. G. Walter Barr, of Keokuk, Iowa, has become a member of the teaching staff of Highland Park, Ill., College.

Dr. Joseph A. Gagne has been reelected city physician of Springfield, Mass.

Dr. John B. Murphy has been elected president of the Wisconsin Society of Chicago. Among the vice-presidents of the society are Dr. A. J. Ochsner and Dr. E. B. Tuteur.

Special Communications.

THE LONG ISLAND COLLEGE HOSPITAL.*

BY JAMES MACFARLANE WINFIELD, M. D.,
Brooklyn, New York,

Professor of Diseases of the Skin, Long Island College Hospital.

The early history of the Long Island College Hospital is so closely linked with that of old Brooklyn that it is almost impossible to write the one without the other. Many of the men who have helped make Brooklyn a centre of culture and refinement were closely associated with the enterprise. With the early history of the hospital on Henry Street are identified the names of Samuel Sloan, Theodore and

Dr. William H. Dudley, often saved the flickering life of the institution in its stormy infancy. The eloquence of Henry Ward Beecher; the convincing logic of Frank Vinton, the "soldier priest of Brooklyn"; the deep, well rounded utterances of Richard S. Storrs, and the earnest persuasion of Bishop Loughlin, were also enlisted to help the young institution.

In 1850 the population of Brooklyn was about 150,000 and there were only three hospitals in the whole city—the United States Marine Hospital, Kings County Hospital, under the direction of the Department of Charities and Corrections, and situated in Flatbush, in those days a long way out in the country, and Brooklyn Hospital. The comparative inaccessibility of the Kings County Hospital and its



LONG ISLAND COLLEGE HOSPITAL, DUDLEY MEMORIAL ANNEX.
Southeast corner of Henry and Amity Streets, Brooklyn; used as a home for nurses.

Henry D. Polhemus, Jacques Cortelyou, A. A. Low, Dr. Louis Bauer, Dr. William H. Dudley, and Dr. John Byrne, and many other bygone Brooklynites. Is it any wonder that with such varied and intelligent forethought, determined benevolence, and unselfish generosity presiding over its birth, after fifty years of active life, we should find the Long Island College Hospital the splendid benevolent and educational institution it is today?

Those earnest, hardworking German physicians, Bauer, Braeunlich, and Zundt, foresaw that along the waterfront of a great seaport would be the ideal place for a hospital and medical college. That doctor of the old school, Daniel Ayres; Dr. John Byrne, who was destined to become one of the world's renowned gynecologists; and the earnest, determined

purely eleemosynary character prevented many from seeking aid there; consequently the larger part of the burden of hospital service for the entire population was thrown on the Brooklyn Hospital.

South Brooklyn was entirely without hospital facilities, until Dr. Louis Bauer, who had conducted an orthopedic institution situated on lower Pacific Street, felt that a hospital could be maintained by the Germans of the Sixth and Tenth wards. Accordingly, in conjunction with Dr. Gustav Braeunlich, Dr. William Arming, Dr. Edward Maebert, and Dr. Herman Zundt, in 1856, he organized the Brooklyn German General Dispensary and Hospital. They leased a building on Court Street, opposite Warren Street (old number 147 Court Street), in March, 1856. The staff of the new institution consisted of two consulting surgeons, two consulting physicians, and two attending physicians and sur-

*We are indebted to Dr. Winfield's article in the *Long Island Medical Journal*, for July, 1910, for the substance of this sketch.

geons. In May, 1857, Dr. Daniel Ayres and Dr. John Byrne were added to the attending staff.

In November, 1857, a number of physicians and prominent laymen were invited to meet the staff of the German Dispensary and Hospital, to discuss ways and means for putting the hospital upon a firmer footing. At this meeting the name of the institution was changed to St. John's Hospital; an advisory board, consisting of prominent laymen and physicians, was formed. Evidently it was the intention of the managers to institute clinical instruction, for Dr. Daniel Ayres was appointed professor of surgery; Dr. Louis Bauer, professor of anatomy and clinical surgery, and Dr. John Byrne, professor of midwifery.

Later in the same month (November, 1857) another meeting of the board was held, with the Hon. Samuel Sloan acting as chairman. As a result of this committee's deliberations, the following attending physicians and surgeons were appointed: Doctor Byrne, Doctor Chapman, Doctor Braeunlich, Doctor Ayres, and Doctor Bauer; adjunct physicians and surgeons, Doctor Olmstead, Dr. G. D. Ayres, Doctor Dodge, Doctor Johnston, and Doctor Whaley. The council were Dr. Theodore L. Mason, president; Dr. Chauncey L. Mitchell, secretary; Dr. William H. Dudley, registrar, and Dr. James H. Henry. The name of the institution had been changed by adding the word College (The St. John's College Hospital); at the same meeting the name of the institution was again changed to the Long Island Hospital and Medical College.

The present Long Island College Hospital really dates from December 27, 1857. The charter (under the name of the Long Island College Hospital, the words "and Medical" having been dropped in December, 1857) was obtained March 13, 1858. After the granting of the charter, the next most important question was, What method of teaching was to be employed in the newly chartered college hospital?

At this time clinical teaching was not in general vogue in America, although late in the eighteenth century Benjamin Rush prescribed and lectured before his pupils in the Pennsylvania Hospital. In 1801, surgical and obstetrical clinics were held in the New York Hospital; operations were performed

before the students at the National Medical College in Washington in 1821, and in 1841, Dr. Willard Parker established the College Clinic at the College of Physicians and Surgeons, New York.

The predominating influence toward establishing clinical teaching in the new college was Dr. Louis Bauer, who was the originator of the German Dispensary and Hospital, and also the first physician to teach and practise orthopedic surgery in America. He was a graduate of the University of Göttingen, and later received the degree of M. D. from the University of Berlin; in London he received the degree of F. R. C. S. from the Royal College of Surgeons; he came to America in 1855. It

was his ambition to apply in the new world the best methods of teaching of the old, and this infant undertaking in the city of Brooklyn afforded him an opportunity. While the method of teaching was not yet fully decided upon, Dr. William H. Dudley became interested in the enterprise, and threw the entire weight of his influence toward establishing the clinical method of teaching medicine in the new college.

Dr. William H. Dudley was born in Ireland in 1811. He attended lectures at the Royal College of Surgeons, Dublin, from 1831 to 1833; he came to the United States in 1841 and resumed his medical education at the College of Physicians and Surgeons, New York, receiving the degree of M. D. in 1842; he began the practice of medicine in Brooklyn in 1843; he was elected a member of the Council of the



LONG ISLAND COLLEGE HOSPITAL, POLHEMUS CLINIC.
At the southwest corner of Henry and Amity Streets, Brooklyn. The two lower floors are used for clinics, the remainder of the building being devoted to college purposes.

St. John's Hospital (afterward the Long Island College Hospital) in 1858, in which position he remained until his death in 1886.

The powerful influence of these two gentlemen guided the deliberations, and teaching medicine by clinical instruction was adopted, thus making the Long Island College Hospital the first medical school in America to introduce bedside teaching. Many of these lectures, together with the reports of operations performed before the class, were published in the medical press of the time.

The hospital occupied the leased premises at 147 Court Street until early in 1858, when the old Perry Mansion, with fourteen city lots on Henry Street between Pacific and Amity Streets, was purchased and fitted up as a hospital with

an outdoor department and accommodations for twenty-five bed patients. The first house surgeon from May, 1858, to May, 1859, was Dr. George A. Ostrander, of 61 Greene Avenue, who is still an active practitioner in Brooklyn. On June 2, 1858, the new institution celebrated its inaugural by a banquet, held at the Athenaeum. In October, 1859, the following professors were recommended to deliver the first regular course of lectures: Dr. Austin Flint and Dr. Frank Hamilton, of New York; Dr. J. D. Trask, of White Plains; Dr. Joseph C. Hutchinson, Dr. Dewitt C. Enos, and Dr. E. N. Chapman, of Brooklyn. The professorships of physiology and chemistry were not filled at this time.

At a meeting of the joint board, in November, 1859, the teaching department was fully established. There had been medical instruction from the beginning, but there had never been any definite college faculty. At the next meeting, December 22, 1859, Dr. R. Ogden Doremus, of New York, was appointed professor of chemistry, and Dr. John C. Dalton, also of New York, professor of physiology. After being closed about six months, the hospital reopened March 29, 1860. The next day, regular medical lectures were begun under the guidance of one of the strongest faculties ever formed in America.

The first Commencement Exercises were held in the chapel of Packer Institute, July 24, 1860. Dr. Richard S. Storrs was the first speaker. Addresses were made by Professor Austin Flint and Doctor Mitchell (president of the Collegiate Department), and Doctor Mason. Dr. S. J. Morrison was the valedictorian. The graduating class numbered twenty-one; two of the graduates were the famous missionaries, the Rev. John and Rev. Jared Scudder. Out of this class, ten served in the Civil War; six were surgeons in the Union Service, three in the Confederate, and one enlisted as a private.

Until 1878, the members of the faculty were often nonresidents of Brooklyn, but since that year only local physicians have held professorships. February 18, 1861, a preliminary course of lectures was begun. The second regular course began one month later, and continued until June 16th. The third regular course was given during the height of the Civil War, and it is a significant fact that this was the smallest class ever graduated from the college. The Civil War was raging, the hospital's finances were low, and it was deeply in debt. In spite of this there were men in the Board of Regents who, once having taken hold of the enterprise, never let go, nor turned back until the difficulties were overcome. In

these straits, Samuel Sloan again came to the front and personally solicited and collected \$8,000 toward the liquidation of the hospital's indebtedness. At this time the council agreed to assume all responsibility for the collegiate department; a like proposition was received from the hospital faculty and staff. Early in 1862, the hospital began receiving wounded soldiers; the first half year 125 men had received medical care. For this the citizens of Brooklyn liberally contributed both time and money, and sympathetic women aided in nursing the sick. It would be interesting to know the exact number of soldiers cared for by the hospital, but this the records do not give.

The income received from the United States, together with the aid furnished by the generous Brooklynites, enabled the hospital, with the greatest economy, to pay expenses. Late in 1864, a special committee reported that they had obtained \$22,800 by subscription. This sum was to be used to free the hospital from debt. The largest single subscription was from Dr. William H. Dudley; too much praise cannot be given Doctor Dudley for the assistance he always gave the hospital.

The additions and alterations to the original Perry mansion were so extensive, that little then remained of the original building. In 1859, the Pacific Street addition was opened, and a similar one on the south (Amity Street) side was opened in



LONG ISLAND COLLEGE HOSPITAL, HOAGLAND LABORATORY,
At the southeast corner of Henry and Pacific Streets, Brooklyn.

1861; this last extension was erected to obtain room for United States sailors. In 1882, the original Perry building, which was the centre building of the hospital, was extended back. In 1887, the Pacific Street extension was enlarged and exclusively used for a maternity hospital.

In 1880, the question of introducing a training school for nurses was agitated, but as this did not meet with general approval, nothing was done until 1883, when the training school for nurses of the Long Island College Hospital was established. In 1897, the Women's Guild of the Long Island College Hospital was organized; the purpose is to provide clothing and other necessary articles for the sick children under treatment in the hospital. In the spring of 1898, the United States War Department selected the Long Island College Hospital as one of those to care for the sick and wounded soldiers of the Spanish-American War. In all, 420 men were treated; the total number of deaths was only twelve, a remarkably low mortality when it is remembered that most of the cases were typhoid fever in its most malignant form.

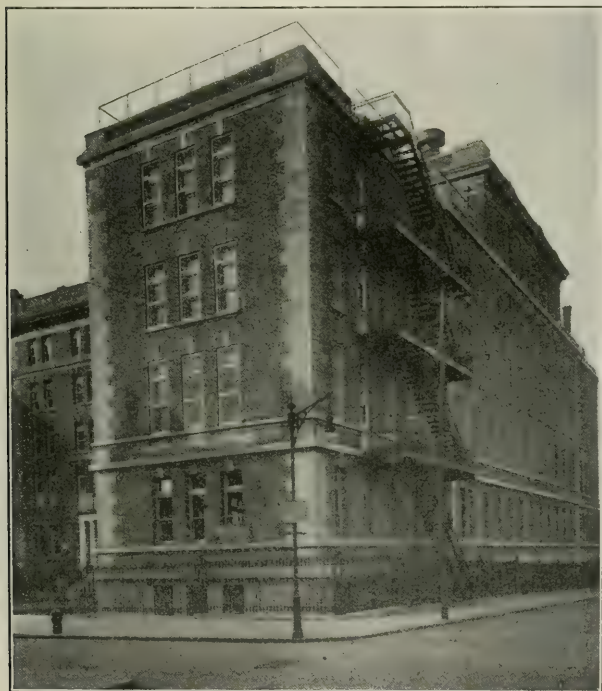
The Long Island College Hospital has been particularly fortunate in the matter of endowments. Among the more important of these are the following: In 1888, \$10,000 was received by legacy from Mrs. James Humphreys; in 1889, by legacy from Mr. John J. Van Nostrand, \$3,000; in 1891, \$5,000

each from the late R. P. Burk and John Ruszits. In 1886, Dr. Cornelius N. Hoagland, one of the regents of Long Island College Hospital, purchased a site opposite the hospital and erected the Hoagland Laboratory. This building was primarily intended for instruction in bacteriology and for special research work along bacteriological lines. The institution is controlled by a different board of directors from that controlling the college hospital, and the only way in which it is connected with the college is through the collegiate department, as certain parts of the laboratory are set aside for undergraduate instruction in practical histology and pathology. The building, equipment, and endowment amount to about \$200,000.

One of the great events in the life of the hospital and college was the erection of the Polhemus Memorial Clinic in 1898. This was a memorial of Henry Ditmas Polhemus, for many years a regent of the Long Island College Hospital, given by his wife. The dispensary is situated on the two lower floors of this building. The remainder of the building is used for the medical college.

In 1899, Mr. Henry W. Maxwell erected to the memory of Dr. William H. Dudley, a building on the corner of Henry and Amity Streets, to be used as a nurses' home. This is known as the Dudley Memorial. Shortly after the death of Mr. Henry Maxwell, his brother, Mr. J. Roger Maxwell, a regent of Long Island College Hospital, announced that he would erect an entire new hospital on the site of the old one, as a memorial to his brother. The Maxwell Memorial is one of the most complete hospitals in the country, and will easily accommodate about 400 patients. It comprises four distinct, though connected, buildings—A

is a five story, basement and sub-basement structure, one hundred by forty-four feet; it has a tile roof with sun parlor and ample room for promenade; on this roof are also situated the water tanks, where the entire supply for the whole building is kept under pressure. Fire lines extend from these tanks to all parts of the buildings, and are made available through hoses situated at convenient points on every floor. In this building are two wards containing twenty-four beds, forty-six private rooms, quarters of the superintendent and assistant superintendent, main office, office of the training school for nurses, staff rooms, regents' rooms, waiting room, baths, boiler rooms; the linen closets and serving rooms are situated on each floor. The basement is given up to the kitchen, cold storage rooms, butcher shop and pharmacy.



LONG ISLAND COLLEGE HOSPITAL, BUILDING C, ARBUCKLE MEMORIAL,
At the southwest corner of Henry and Pacific Streets, Brooklyn;
hospital for male patients only.

The accident rooms, reception room, and rooms for violent patients are also in the basement.

Building B is two hundred and twenty by forty-four feet and four stories high, has roof pavilions with conveniences for the outdoor treatment of patients in all kinds of weather. A part of it can be enclosed and heated, another section is arranged for a shelter and there is a promenade around the whole. The fourth floor is given up to operating rooms and the quarters for the house staff. There are three operating rooms; the main one, an amphitheatre, with seats for two hundred and fifty spectators, is supplied with every convenience for modern surgery. This is known as the Skene Memorial, and is in memory of the late Dr. A. J. C. Skene. Connected with this room is a sitting room for the operating surgeons, shower baths, toilet and lavatory, and metal lockers for the operating staff. On the opposite side of the operating room is the scrub up room, the instrument and sterilizing rooms; in the instrument room are the lockers for the instruments and dressings, etc. In this building there are also two private operating and scrub up rooms and an x ray room and laboratory. The third floor is in two divisions, the children's ward at one end and the maternity at the other. The children's ward contains thirty-five beds and there are twenty in the maternity. The second and first floors are arranged for female medical and surgical patients. On each floor there are two wards of sixteen beds each, one semiprivate ward of four beds and five private rooms; in addition to these there are drying rooms, dining rooms, one quiet room, office, baths, toilet and linen closets. A portion of the basement is partitioned off by a solid wall, and serves as a temporary isolation room for suspected contagious cases.

Building C, situated on the Pacific Street side, is devoted to male patients, medical and surgical. It contains the dining rooms for the house staff, and quarters for the male help.

Building D is a two story and basement structure directly in the rear of A, and extending from B to C. The two upper stories are used for laundry, linen room, and drivers' quarters. In the basement are the boilers, pumps, electric generators and other machinery.

In the yard at the rear of the hospital there is another isolation section containing the laboratory, morgue, and mortuary chapel, all fitted up in the most modern manner. The building is a fireproof structure, built of Harvard brick and Indiana limestone. The floors are of steel and concrete; the only wood used in the construction is that of the doors and window frames and sashes. The heating system is the direct overhead steam type. All machinery is driven by direct electric motors, the current for all purposes, including lighting, is generated on the premises. There are four electric elevators, two for passengers and two for freight. During 1914 the finishing touches were made to the hospital and all four buildings are now completed and in constant use; a new wing has also been added. This happy result was due to a timely bequest from the Arbuckle estate.

Beginning this year, 1915, the course of instruction for medical students in Long Island College Hospital will continue throughout five years, as in

Great Britain, Canada, and many of the continental schools. The example will probably soon be followed by other institutions in the United States. Not content with this remarkable advance, however, the authorities have decided that, beginning in 1918, an additional year of purely hospital or clinical instruction will be compulsory, making the course last six years in all. This will be a daring experiment, but it is believed that many earnest students will seize upon the advantages of so complete and practical a curriculum.

The Long Island College Hospital is today one of the foremost medical colleges and hospitals in the country. For many years its usefulness was hampered by lack of funds, but the devoted energy and hopefulness of those interested in it have always enabled it to do efficient and laudable work, and now that its time of struggle is over, with an excellent equipment and sufficient endowment, we confidently expect to see it step ahead with advancing science and become one of the world's great medical schools and hospitals.

The writer wishes to acknowledge, with many thanks, his obligations to Dr. William Schroeder; Raymond's History of Long Island College Hospital; old files of the *Brooklyn Eagle*, and the Long Island College Hospital *Chronicle*, etc.; and to Dr. Richard E. Shaw, the superintendent, for a detailed description of the Maxwell Memorial.

AN AMERICAN SURGEON WITH THE FRENCH RED CROSS.

BY DANIEL R. ROBERT, M. D.,
Brooklyn, New York,

Assistant Attending Physician, St. Joan's Hospital.

After spending some ten months in continuing my medical studies abroad, the outbreak of the war found me in London. There I joined a volunteer hospital unit organized by the Union de Femmes de France, one of the French Red Cross Societies, and went with the unit to the north of France on October 1st. The unit was composed of four surgeons, two of whom were British, Dr. Maurice W. Renton, Dr. Alastair MacGregor; one Egyptian, Dr. Hamed Mahmud, of Cairo; and myself, an American; two Americans, Mr. F. W. Cooke, Jr., and Mr. C. S. Fayerweather, of Paterson, N. J., who had volunteered to act as chauffeurs, and one English volunteer, Mr. H. P. Light, who not only volunteered his services, but also furnished his own car; and twenty-three English trained nurses. The unit was under the command of Dr. Maurice W. Renton, who had served in the Royal Army Medical Corps throughout the Boer war.

The Grand Hotel de la Mer at Fort Mahon, in the province of Somme, had been taken over, and was assigned to us as a base hospital, the manager being under contract with the French Red Cross Society to cater for the hospital staff and with the French military authorities to cater for the patients.

Our hospital, which was known as the *Hôpital auxiliaire de Fort Mahon*, was in the military *région du nord* about fifty miles west of the firing line run-

ning from Béthune to Arras. We divided the hotel into three wards, each surgeon taking charge of one ward with from twenty to thirty beds in each. The private rooms were occupied by officers or by particularly grave cases which required isolation. The doctors and the nurses had separate mess rooms. The fare was simple but well cooked. We had three motor ambulances, two Renaults and one Berliet, and one motor car, an Oakland, belonging to Mr. Light, for the use of the staff. Later more ambulances were added to our equipment.

Every member of the unit was provided with a card of identification issued by the Minister of War bearing the signature and photograph of the bearer. The accompanying illustration represents the inside pages of the card of identification used by me.

of the Health Service of the army corps. Every wearer of the brassard should be *constantly* in possession of his card.

Our hospital and staff were under the supervision of the army medical corps, and the hospital was frequently inspected by its staff. A lieutenant of the administrative corps of the army, corresponding somewhat to the quartermaster's department of our own army, was attached to our hospital, and looked after the purely administrative features, including the vast amount of red tape involved in keeping track of the patients. All the cases were surgical, the medical cases being sent direct to the south of France, and not reaching our hospital at all. Save for that fact and for the forty-five mile ride to the field hospitals and dressing stations in the ambulances, two or three times a week, the service was



Card of identification issued to Dr. Daniel R. Robert by the French Ministry of War.

On the front cover are the words, "French Republic Ministry of War, Medical Corps Societies to aid the sick and the wounded of the army and navy. The identification card is for persons belonging to the Union of the Women of France, Military Hospital of Fort Mahon." On the back cover is an extract from the regulations, a translation of which follows:

Article 8. Members of all Aid Societies employed in the zone in the rear of the army are subject to military law and regulations, and are responsible to military tribunals.

Article 10. Persons belonging to Aid Societies are authorized to wear the brassard of the Geneva Convention, they receive at the same time a card bearing the name and the same number as appears on the brassard, which is signed by the regional delegate, as well as by the Director

not very different from that of an intern in a civil hospital. We improvised an operating room from a pantry which was enclosed in glass and provided with running water.

While the work of the unit was subjected to constant and careful inspection by the medical military officials, the members of the staff were treated with the utmost consideration. The fuel, tires, etc., for our automobiles were obtained from the military transport stations established at intervals in the rear of the firing line. Here any motor vehicle, the chauffeur of which had proper credentials, could obtain a supply of gasoline and have needed repairs attended to. Without proper permits no car was allowed to move about in the rear of the army.



FIG. 1.—Renault motor ambulance, with accommodations for six patients lying down and three sitting. It was found impracticable to use top stretcher, so only four were used. Note the double wheels. To the right, Dr. Maurice W. Renton, in command of the unit; to the left, Dr. Daniel R. Robert.

FIG. 2.—Receiving the wounded from the front at the field hospital at Aubigny.

FIG. 3.—Grand Hôtel de la Mer, Fort Mahon, which has been converted into a base hospital with one hundred beds.

FIG. 4.—Ambulances parked at motor transport base, from which ambulances were sent to collect the wounded from dressing stations, conveying them to field hospitals and to trains at the nearest railway station, to be sent south by rail.

FIG. 5.—Dr. Hamed Mahmud, of the French Red Cross with French officers of the transport service. Motor ambulance presented by the Women's Institute of London, at dressing station near the front in the country between Bethune and Arras.



FIG. 1.—Surgeons and ambulance men of the base hospital at Fort Mahon. From left to right, Dr. Daniel R. Robert, Dr. F. W. Cooke, Jr., Dr. A. MacGregor, Dr. M. W. Renton, Mr. C. S. Fayerweather, and Mr. H. P. Light.

FIG. 2.—Dressing station at Haut Auverne, two kilometres behind the trenches. The wounded are brought at night to the dressing stations, by stretcher bearers and in two wheeled horse drawn carts. From the dressing stations they are conveyed in motor ambulances to the field hospitals and to the rail-head, where they are put aboard Red Cross trains and taken to Paris or to the south of France.

FIG. 3.—Château de Boismont, la Comté, Pas de Calais. Field hospital five miles in the rear of trenches, forty-five miles from the base hospital at Fort Mahon.

FIG. 4.—Convalescents and nurses at the base hospital at Fort Mahon. Nearly one fourth of the patients were Turcos from the Algerian regiments.

FIG. 5.—A ward in the base hospital at Fort Mahon, occupied exclusively by Turcos.

Our nursing staff was excellent, consisting of well trained English nurses, corresponding in character and attainments to the American trained nurse. They were women of education and refinement, all of good social standing, and most enthusiastic in their work. I have even seen a nurse pay out of her own pocket for some delicacy or for supplies needed for her ward, rather than have her patient go without them until they could be received through official channels. I was much impressed with the superiority of the English trained nurses over the women who bear the title of nurse on the continent generally. The universal military service in force in France brought into the ranks all grades of society. The French soldier makes an admirable patient, being well disciplined, and bearing pain in the most cheerful and uncomplaining manner, and is very grateful for the attention of the doctors and nurses.

The wounded were moved every night from the trenches to the dressing stations, which were generally from one to two miles behind the trenches, stretcher bearers transporting those who were unable to walk. There their wounds were dressed if necessary. The graver cases were sent in motor ambulances to the field hospitals, which were ordinarily located in châteaux or school houses several miles in the rear of the firing line. The milder cases were sent to the rail-head for transportation in hospital trains to Paris and the south of France.

After we had been at work for about a month, we established a field hospital of our own in the beautiful Château de Boismont at La Comté, a photograph of which is shown on another page. Two or three times a week our ambulances, each accompanied by a surgeon, would make the rounds of the field hospitals and dressing stations, collecting such of the wounded as could not stand a long journey on the train, taking them to the base hospital at Fort Mahon. There the patients were detained until they were well enough to be sent to a convalescent home or until their wounds were in such condition that they could stand transportation for forty-eight hours without attention. About once a week all the patients who came under either category were conveyed from the base hospital at Fort Mahon to the railway station and were sent on to either a convalescent home or to some of the large hospitals at Paris or in the south of France.

On receiving a patient we gave him at once a prophylactic injection of antitetanic serum, some of which came from Paris and some from America. The antitetanic injections seemed to be effective so far as we could tell, for during the three months of my service we had only one case of tetanus, and this occurred in a patient who was brought to us suffering from gangrene of both feet, the result of having had his feet frozen in the trenches. He died the first night after reaching us. As soon as the patient was strong enough he was given an antityphoid vaccination unless he had already received this, as many had.

The men who had been serving in the trenches were all extremely dirty, and infested with body and head lice. The lice were got rid of by tying up the patients' heads in carbolized liquid petrolatum for two nights and applying it liberally over the body.

The majority of the wounds were from shrapnel and consisted largely of compound comminuted fractures of the lower limbs with great laceration of the tissues. Jagged pieces of shrapnel would be found imbedded in the tissues, carrying with them pieces of clothing or even splinters of wood through which the shell had passed. Practically all the wounds were septic. The whole of the region in which the fighting was going on had been heavily manured for years and was rich in microbes. Most of the wounds were multiple. One patient had thirty-seven shrapnel wounds in the thigh. General sepsis was a foregone conclusion in this case, though the patient survived for six weeks.

The treatment was always conservative in character, amputation being seldom resorted to. It was impossible to prevent infection in shrapnel wounds, as the septic material was generally buried so deep in the tissue that infection had already set in before the patient reached the base hospital. For this reason ordinary antiseptic applications were valueless in the class of cases which reached us.

In all cases except when it was perfectly clear that the bullet had passed out, the patient was anesthetized with ether or chloroform, the wounds were explored and all foreign bodies removed. As already stated, the majority of wounds were caused by shrapnel; next in point of number were those from bullets, with a few wounds from hand grenades, and an occasional bayonet wound.

Special hospitals were maintained for the treatment of cases involving the eye and for those involving the teeth or jaw. Different types of medical cases were also segregated, there being special typhoid hospitals, special hospitals for the different contagious diseases, etc. Of course, it would frequently happen that a patient had a wound in the eye or in the mouth and was also wounded elsewhere, and would therefore be brought to our hospital. Such cases were reported to the military superintendent of the district and the patient would be visited promptly and operated upon, if necessary, by specialists. I was much impressed with the ingenuity, mechanical skill, and dexterity of the French surgeons.

I am unable to give any statistics regarding the mortality, as I had nothing to do with the administrative features of the work.

I consider the experience as having been invaluable from a professional point of view, and regretted exceedingly when my term of service came to a close.

261 HICKS STREET.

Treatment of Delirium tremens by the Subdural Injection of Sodium Bromide.—S. P. Kramer, in the *Ohio State Medical Journal* for March, 1914, reports that in his experience this therapeutic procedure has given brilliant results. The technic in his series of twenty cases consisted in the withdrawal of cerebrospinal fluid through lumbar puncture in amounts as large as possible, viz., fifty to sixty c. c., and the injection of a sterile one per cent. solution of sodium bromide in equal amount. Kramer feels justified in stating that absolutely no danger from increased subdural pressure is entailed by the treatment.

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

November 30, 1914.

The Chemotherapy of Pneumococcus Infection, by J. Morgenroth.—The author reviews the whole subject of the origin, experimental studies, and clinical applications of his preparation called optochin, chemically a quinine derivative, ethylhydrocuprein. Morgenroth found that of all the preparations synthesized, optochin exerted the greatest and most specific toxic action on pneumococci both *in vitro* and *in vivo*. Very small amounts were able to protect mice against fatal pneumococcal infection; optochin, if given shortly after the animals were infected, cured a large proportion. The protective or curative dose was decidedly below the dose toxic to the host. Application of this preparation to human practice has been undertaken by others, and Morgenroth here reviews the work reported. Local application of optochin to the eye in cases of pneumococcal corneal ulceration has given such uniformly good results that it can be classed as almost a specific. Cure in these cases is prompt, treatment easy and without danger. It has been given internally in malaria with good results, though in a few patients, its administration produced more or less complete blindness. This amaurosis, however, was only temporary; it has been found to be of the same nature as that produced by quinine. As to treatment of pneumonia some have reported favorably; others have been unable to see any beneficial action. It is suggested that the difference rests upon the fact that in the unfavorable cases the drug was not administered until late in the disease. Morgenroth thinks it probable that its administration from the very earliest appearance of pneumonia will be followed by marked benefit in a large proportion of cases. He suggests, on the basis of animal experiments, that its promptly destructive action upon pneumococci can be secured with the concentration which it is possible to maintain in the human circulation and tissues, and this action, while destroying the organisms, does not interfere with the normal development of immune antibodies. To maintain the required concentration the drug should be given orally at regularly spaced intervals throughout the day and night. The daily dose should not exceed 1.5 gram, as doses larger than this if long continued may give rise to temporary blindness. It must be admitted that at present the drug is still in its experimental stages and its true value in pneumonia has not been established as yet for man.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

November 10, 1914.

Lipoid Substances in the Urinary Sediment in Children, by E. Reinike.—By means of the polarization microscope, it has become possible to discover lipoids when they are present in the urine, and this method has now been applied to the study of the urine from a large number of children. No lipid was found in the urine of children in any disease with which there was not an associated renal lesion. This was also true in cases of tuberculosis and syphilis which showed symptoms

referable to the kidneys. Although all of the cases in this series in which syphilis was present were in infants, it does not appear from this investigation that lipid degeneration plays the same important role here that it does in adults. Lipoids were also never found in any case of acute nephritis, nor were they present in cases with orthostatic albuminuria. In a total of one hundred cases lipid substances were found in the urine in only eight cases. In four of these they were present only once, or, at most, a very few times during the period of observation. In two of the cases they were found shortly after scarlet fever, and in two others after diphtheria. In the remaining four cases the presence of the lipid was fairly constant for weeks and months. The first two of these cases represented the chronic degenerative type of nephritis with its malignant course and severe clinical symptoms. The last two cases, on the other hand, were of the ordinary mild type of nephritis. No instances of intense nephritis were observed other than the two recorded, but the author believes that in this discovery of lipid substances in the urine, we have a valuable diagnostic and prognostic aid, and that their presence is indicative of degenerative renal disease.

November 20, 1914.

The Treatment of Furuncles, by Schuele.—Any furuncle can be aborted within the first forty-eight hours if its centre is burned out under local anesthesia. For anesthesia a solution of novocaine is injected, first into the subsurface and then directly into the body of the furuncle. When anesthesia is secured a red hot needle or the platinum tip of a cautery is thrust directly through the centre of the furuncle and the tissue thus completely destroyed. If the furuncle is fully developed before treatment is undertaken, the cauterization should be preceded by an incision to remove the pus. Healing is prompt after this treatment. The development of further furuncles can be largely prevented by thorough cleansing of the skin with soap, rubbing with alcohol, and the painting of suspicious pustules with the tincture of iodine.

December 3, 1914.

Protective Action of Diphtheria Antitoxin on Reinjection, by O. Hartoch and W. Schuermann.—The subcutaneous injection of antitoxic serum into guineapigs, rendered hypersensitive to horse serum by previous injection, was followed by a great reduction in the degree of protection afforded against diphtheria toxin. Such animals showed from eight to thirty-two times less protection than did normal animals receiving similar doses of the same serum. There is evidence that previous injection of antitoxic horse serum into man is also followed by a similar great reduction in the protection to be secured by a later injection. If hypersensitiveness was discharged in guineapigs by preliminary injection of small doses of horse serum, then injection of antitoxin produced full protection. It is suggested that the same probably will hold true for man. In addition to this means of insuring that the protection will be full, the preliminary injection of small doses of horse serum has the great advantage of protecting the individual against the dangers of an anaphylactic reaction.

Vaccine Treatment and Diagnosis of Gonorrhea, by Gustav Stuempke.—Experiences are conflicting with regard to curative or beneficial effects of gonococcus vaccine, possibly because there are many different strains of gonococci. The author used as many strains as possible to secure the greatest degree of polyvalence. An autogenous vaccine is here not practical on account of the slow growth of the gonococcus. The author gave doses of vaccine containing from five to ten million organisms, repeating these at intervals of from three to six days. The doses were mainly subcutaneous and intramuscular, as intravenous injections resulted in severe reactions and high temperature. Some good results were obtained in gonorrheal arthritis and epididymitis, and those secured in gonorrheal infections of the parametrium, whether acute or chronic, were encouraging. Vulvovaginitis in children responded quite variably. Other forms yielded few if any good results. The author asserts that the results of vaccine treatment are not so favorable as many of the reports would lead one to believe. As a diagnostic agent the vaccine also seems of very little value, and Stuempke saw neither local nor cutaneous reactions from its use in probable cases. Focal reactions, however, did occur in some cases, but they were hardly frequent enough to be of great value and much the same symptoms were encountered after injection in normal persons. The same may be said of the production of fever by the injection of vaccine.

BULLETIN DE L'ACADÉMIE DE MEDECINE.

December 29, 1914.

A Procedure Bringing Partial Relief from Fatigue in Troops on the March, by Maurice de Fleury.—The procedure referred to consists in having the men lie on the ground, with their heads resting on their knapsacks, and their lower extremities, preferably after removal of the shoes, extended perpendicularly upward and resting against a tree, wall, hedge, or the face of a trench. In this position, a series of rapid movements of the toes, ankles, and if possible, the knees, are to be executed for a period of five to fifteen minutes. If no suitable support is at hand, the men may rest their legs against one another. The effect of the procedure is a prompt and striking relief from the previous sensations of joint stiffness, muscle cramp, weight, etc., so that troops apparently exhausted may in fifteen minutes acquire the ability to put forth a further effort, possibly with decisive results.

Heart Disease in Military Service, by C. Fiesinger.—An account is given of the decidedly satisfactory showing made in active service by twelve men suffering from chronic valvular or myocardial disease. Stress is laid on the intermittent administration of small doses of digitalis as a means of preventing sudden dilatation of the heart under active stress in military service. In most instances, 0.1 mg. of crystalline digitaline (French) was given on two or three successive days in each week. Where signs of myocardial weakening under stress had already been seen, the drug was given for a series of ten successive days, separated by four day intervals. As might have been expected, primarily valvular affections withstood active service better than the myocardial cases.

REVISTA DE MEDICINA Y CIRUGIA PRACTICAS.

January 14, 1915.

Oculocardiac Reflex in Gastric Pathology, by Sarabia y Pardo.—Great stress is laid on the part played in gastric conditions by alterations in the vagus and sympathetic systems, with the concomitant oculocardiac reflex. Gastric disturbance is frequently coincident with the nervous affection as in alcoholic and tobacco intoxications. In lead poisoning, diabetes, gout, suprarenal and thyroid disease, the nervous disturbance may appear first or at the same time as the stomach symptoms. The lesion of the vagus or sympathetic is primary in tabetic gastric derangement, in tumors of the neck and mediastinum, also in localized peritonitis involving the nervous distribution. Gastric lesions are primary in gastroparesis, gastric ulcer, and carcinoma. In neurosis of the sympathetic there is found an inversion of the reflex with tinnitus of the ears, and congestion of the face. The patients have a florid complexion, pupillary dilatation, tachycardia, and arterial hypertension; the abdomen is quite tender, and there is often diarrhea. In dyspepsia from neurosis of the vagus there are palpitation, pseudo-angina pectoris, dyspnea, and asthmatic symptoms. In such cases the oculocardiac reflex is positive and exaggerated, the pulse is lowered from eight to twenty beats a minute. Beside bradycardia there is nausea with marked vertigo.

BRITISH MEDICAL JOURNAL.

January 23, 1915.

Acidosis and Nitrogen Partition in Pregnancy, by H. Leith Murray.—He holds that total nitrogen, as it is subject to marked changes during pregnancy, is of value only as a means of estimating the ammonia percentage. Normally from three to five per cent. of the nitrogen of the urine is in the form of ammonia, but these figures may be greatly exceeded; the rise is not necessarily associated with acidosis. Probably a large part of the ammonia is produced through histological changes in the liver. High ammonia content is an indication of damage to liver tissue. If this damage is very extensive, if the liver cells are no longer able to perform their function, there is no ammonia production. Ammonia is therefore an index of the degree of the liver damage, at least to a certain extent. In normal pregnancy there is a considerable strain on the liver and this may account for the elevated ammonia percentage. An increase in ammonia is most marked in that form of toxic pregnancy associated with hyperemesis; in this condition the liver lesions have been found to be essentially degenerative, necrosis only appearing very late. In eclampsia, on the other hand, the liver lesion is one of focal necrosis. A low ammonia in toxic vomiting is indicative of relatively little damage to the liver and may be regarded as of good prognosis. A low ammonia in eclampsia, on the other hand, indicates very extensive liver damage with little functioning tissue left, and is of bad omen. Where acidosis is present we have no trustworthy laboratory means of measuring its gravity, but it is suggested that the degree of exhaustion of the fixed bases of the body should give the best measure of the extent of the acidosis. This can be estimated quite readily by the determin-

ation of the amount of alkali which must be administered to render the urine alkaline. The ammonia percentage is not an index of acidosis because the fixed alkalies of the body are first called upon for the neutralization of the acids and therefore ammonia may be normal in the urine in the face of a high grade acidosis. Observations are cited in substantiation of these statements.

Inoperable Cancer Treated with Goat Serum, by Albert Wilson.—It has been shown by Shaw-Mackenzie and others that the blood normally contains a substance which activates or accelerates the fat splitting action of the pancreatic secretion; this substance is increased in certain more favorable cases of cancer; it is decreased in cases in which the growth is rapidly progressing. The antitryptic action of the serum is also increased in the latter type of cases. It has also been observed that the antitryptic action of the serum, and the power of accelerating the fat splitting action of the pancreas, returned to normal in some cases after the operative removal of the cancer. On the basis of these observations Wilson has injected goat serum in five cases of inoperable cancer, hoping that the very marked activity of this serum in accelerating the fat splitting action of the pancreas might aid the natural effort of the body to combat the spread of cancer. A patient with inoperable cancer of the uterus was relieved of her symptoms, the growth disappeared so far as gross evidences were concerned and the patient lived for two years after the injection. Four other cases of cancer are reported in none of which was there anything approaching the effects obtained in the first, but in all of which there were a material recession of symptoms and an almost complete alleviation of pain and associated symptoms.

LANCET.

January 23, 1915.

The Black Pigmented Appendix, by William Henry Battle.—The author has observed six cases in which the appendix and the colon for a variable distance have been darkly pigmented on the mucous surface. The color was a brownish black and did not appear on the serous surface at all. All of the patients were women, in whom there was chronic constipation or intestinal stasis as well as appendicitis. Microscopically the pigment was found to lie both in and between the cells of the mucous surface only. Chemical examination of three specimens showed the pigment to be an iron compound, the precise nature of which was not determined for want of material. In only one case was there a history of the patient's having taken iron in medicine. The author thinks that the iron was derived from wheat flour, having been introduced by the wearing off of the corrugations of the mill rollers. Chemical examination has shown that the best flour contains an abnormal amount of iron, although this is not separable by the magnet. The author suggests that this iron may be the cause of the increased amount of chronic constipation of recent years, and that possibly fecal concretions may form from the same cause. Iron also seems to play an important role in the causation of appendicitis.

Theory of Salicylate Therapy in Rheumatic Infection, by Reginald Miller.—By a careful analysis

of the symptomatology of rheumatism, Miller makes out a strong case for the contention that the salicylates act as specific destructive agents upon the infecting organism. Thus, he shows that their most marked effects are elicited in the acute stages of joint involvement, in acute tonsillitis, and in acute rheumatic infections involving other structures, such as the serous membranes, the blood, etc. All of this speaks for a direct attack upon the invading organism. On the other hand only moderately good results are obtained from salicylates in the subacute conditions in which the condition is mainly one of toxemia not associated with great numbers of living active organisms in the blood or tissues. This also strengthens the germicidal theory of their action and speaks against the belief that the salicylates act by chemical neutralization of toxins. Further, in the chronic conditions following rheumatic infection, such as chorea, heart lesions, etc., the salicylates have little or no beneficial effect, unless it be to reduce a fever which is in all probability due to the presence of a small number of active organisms. In the administration of the salicylates the temperature chart is regarded as the best index of doses. The effective administration should call for doses of from sixty to 120 grains daily until the temperature falls. In any case in which more than 100 grains is to be given daily, the total amount should be given in ten single doses spread through the twenty-four hours. Sodium salicylate should be given with an equal amount of sodium bicarbonate, but more than this is not required.

Dry Cupping in Laryngeal Affections, by W. Stuart-Low.—This has been found a valuable and simple means of relieving the symptoms of many types of laryngeal affection. Tuberculosis of the larynx, threatened laryngeal edema, catarrhal laryngitis, etc., are all greatly relieved by the application of suction cups. The essential feature in this form of treatment is the proper location of the cups so as to place them over the points of entrance and exit of the blood and lymphatic vessels. The sites for cupping, given by Stuart-Low, are the posterior half of the thyrohyoid membrane on either side and over the cricothyroid membrane both laterally and anteriorly. Care should be taken when first applying the cups to determine the sensitiveness of the skin and the degree of suction and length of application which can be borne without the production of ecchymosis.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

January 30, 1915.

Ankylosis: An Experimental Study, by N. Allison and B. Brooks.—This paper was abstracted in our issue for July 4th, page 53.

Observations on Bone Transplantation (Albee Method) for the Cure of Tuberculous Spine Disease, by C. M. Jacobs.—This paper was abstracted in our issue for July 4th, page 45.

The Blood Pressure during Pregnancy, by F. S. Newell.—A considerable number of pregnant women have a temporary rise in blood pressure without other symptoms. In other cases a rise in blood pressure was followed by albuminuria, indicating toxemia. In only one case did convulsions occur; the others yielded to treat-

ment. Eleven patients had albumin with high blood pressure; all of these were presumably more or less toxic. Five patients had a blood pressure of 140 mm. Hg., or over, throughout observation; but only one with albumin at any time during the pregnancy; all passed through labor normally. This would tend to indicate that persistent high blood pressure, in the absence of other signs, is not necessarily dangerous, although it should always arouse suspicion and call for increased watchfulness.

The Symptomatology and Treatment of Seborrheic Keratoses, by R. L. Sutton.—Few appreciate the importance of these keratoses in the causation of carcinoma of the skin. A factor, material, if not essential, of basocellular and prickle cell cancer is a peculiar quality of the skin which may be inherited, but is usually acquired, and which is characterized by harshness and dryness, with evidence of long standing dry seborrhea. Age is an important, though not indispensable, factor in the production of these changes, and long continued exposure to strong sunlight and to sudden atmospheric changes is a contributory cause. Clinically, the keratoses begin as small round or oval, brownish macules, and the sites of predilection are the face, scalp, upper part of the trunk, and backs of the hands. When fully developed the growths are flat topped, papular elevations, yellowish, grayish, or brownish in color, sharply circumscribed, and covered with a firmly adherent crust which is usually greasy and velvety if the lesions are on the scalp or trunk, and rough and dry if they are on the face or hands. Examination of sections from a number of these growths shows that the lesions may be roughly separated into three groups: First, and most frequent, a keratoid variety, characterized by great corneous hypertrophy; second, a nevus type, practically identical with Unna's *nevus seborrheicus*; third, an acanthoid or verrucose form. The earlier keratoid lesions are readily removed by frequent applications of a bland grease, such as rosewater ointment. Afterward, the occasional employment of a lubricant of this kind will prevent a recurrence, provided that the use of hard water and highly alkaline soaps is avoided. Men whose faces are affected should never shave with a dull razor, nor, after shaving, allow any soap to remain on the skin. In the nevus, verrucose, and advanced keratoid types a salve such as the following is generally required to remove the outer layers: Salicylic acid and sulphur, each one part; petrolatum, thirty parts. This may be applied at night on a piece of cloth covered with oiled silk and held in place by a cross of adhesive plaster. As soon as the corneous mass is softened it may be gently removed with a bit of cotton moistened with benzine. Of all the caustics recommended in this condition, none, in the author's opinion, equals Pusey's carbon dioxide snow; freezing, with moderate pressure, for from thirty seconds to a minute, is usually all that is required. The lesion is then painted with tincture of iodine; thymol iodide or a similar antiseptic is applied. If a bulky dressing is objectionable, a five per cent. ammoniated mercurial ointment may be employed. In growths which have already assumed a malignant character the treatment is that for carcinoma of the skin.

MEDICAL RECORD.

JANUARY 30, 1915.

Senile Paraplegia, by M. A. Starr.—Senile paraplegia includes different pathological conditions. The patient becomes gradually more and more feeble, partial paralysis occurs later, and finally he becomes bedridden. In some instances the weakness is attended by a marked ataxia. Pain in the back and around the loins, particularly at night, is common, and not infrequently it is accompanied by sensations of numbness and tingling, while coldness of the feet and legs is felt and an objective coldness of the surface. The vasomotor condition is below normal; edema may occur when the patient is out of bed. Occasionally a loss of control of the sphincters occurs late in the disease, to be carefully distinguished from prostatic weakness. It seems possible to distinguish pathologically between certain groups in these cases in which the primary disease lies in the muscles alone, a muscular dystrophy or atrophy of slowly progressive character, and another group in which, it is evident, there is an active degenerative neuritis, characterized by much pain, burning and tingling, by tenderness along the nerves, and increased pain on motion. Thirdly, there are cases in which the spinal cord is the seat of the disease, as indicated by incoordination, involvement of the sphincters, and ataxia, in the early stages. In all these cases the prognosis is manifestly rather unfavorable, although in all great variations and marked improvement, though temporary, have been observed after treatment. In muscular cases, treatment should consist of a vigorous, stimulating diet, with meat, fatty foods, and excess of water, with a diminution of salt in the food, and mild stimulation by alcohol and strychnine. Warm baths (100° F.), continued for twenty minutes, with mild massage, preferably under water, dry massage or alcohol rubs. and rest in a warmed bed, are also of service. In neuritis, on the contrary, baths and all manipulations of the limbs and massage have to be avoided on account of pain; if local applications are made they should be soothing lotions, on soft linen cloths, kept warm by heating the bed. In spinal cases hot and cold douches to the back, massage of the back and limbs, and dry cupping of the spine should be employed; the patient should lie on the stomach, so that gravitation may aid in emptying the congested veins. Tonics containing strychnine and digitalis may possibly be of benefit.

Intestinal Paresis: Its Treatment with Pituitary Extract, by E. H. King.—Intestinal paresis is defined to be perverted function of the intestine prominently characterized by loss of tone of its musculature, of variable extent, and by extreme gaseous distention of the paralytic gut, following actual obstruction, circulatory failure, or toxemia. The mechanism of the distention would seem to be clear; loss of tone of the intestinal muscle and gas production through the action of putrefactive bacteria upon the intestinal contents. The current teaching is that pituitary extract directly stimulates smooth muscle tissue. Probably it does not add any energy whatever to the body, but acts like a catabolic enzyme, accelerating the production of energy by smooth muscle. Its action upon the intestine is dependent

on some degree of integrity of the functions of the muscle, the vagi, the sympathetic, and intrinsic plexuses. When the neural functions are in abeyance, it is useless; we have to wait their return, in the meanwhile employing appropriate treatment. By effects of pituitary extract are rise of blood pressure, dyspnea, air hunger, and pallor; but these are transitory, and are negligible when contrasted with the lasting benefit secured in the majority of instances. Vomiting may be expected, and be welcomed, if the stomach contains intestinal excrement; for in intestinal paresis the upper, rather than the lower, alimentary tract functions inadequately as the vent. Pituitary extract is injected, under aseptic precautions, into a vein—usually one near the elbow, though in fat persons a vein on the back of the hand is more available. In a given case of intestinal paresis, it affords an additional means of emptying the bowel, which is peculiarly applicable and transcends in efficiency any previously known. In uncomplicated postoperative cases its action is promptly curative, and it is possibly curative of functional, actual obstruction. Pituitary extract should be given very carefully when the heart rate is unusually high, 140 or more, when there is marked intermittence of the heart, or in cardiac decompensation. In angina pectoris, on account of the vasoconstriction produced by it, this agent is probably absolutely contraindicated.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES

January, 1915.

Syphilitic Nephritis, by A. Stengel and J. H. Austin.—In a large number of cases nephritis has been observed in syphilitics under mercurial treatment; nephritis has been variously interpreted as a mercurial nephritis—as a consequence of the syphilis. The proof of the syphilitic nature of certain cases must be indirect. Nephritis may be recognized in the secondary stage of syphilis as an acute process; usually in the first two or three months. In the later stages, amyloid kidney and interstitial nephritis are the most frequent forms. In congenital syphilis the renal lesions are more often those of defective development; in late hereditary syphilis the commonest renal manifestation is amyloid disease, and the onset usually insidious. Monk noted the occasional presence of doubly refractile lipoids in the urine in nephritis; they are so abundant in suspected syphilis as apparently to warrant the recognition of a peculiar relation between syphilitic nephritis and the presence of such lipoids in the urine. A series of original investigations by the authors has resulted in evidence which, they believe, suggests that there is a parenchymatous type of nephritis due to syphilis, characterized by an abundant albuminuria with numerous hyaline, granular, and occasional epithelial casts, with a tendency to produce edema of renal distribution, associated, as a rule, with a moderate reduction of phthalein output and exhibiting an almost constant tendency to the presence of doubly refractile lipoids. Similar lipid globules may be found, it is true, in severe parenchymatous nephritis of other causation, but in only a minority of instances; with but one exception in their series,

the cases which showed abundance of these lipoids were syphilitic.

Infectious Diarrhea, by J. L. Morse.—This disease is more common in hot weather, and the action of heat in its production is chiefly due to the lowering of resistance to infection. It presumably also favors the development outside of the body of the microorganisms found in the disease. These are its primary cause, and they are of several different types, which may be divided roughly into three main classes: The dysentery bacillus in all its forms; the gas bacillus and other similar organisms; the streptococcus, colon bacillus, and *Bacillus pyocyaneus*. The only affection with which a typical case of the disease is likely to be confounded is intussusception, though usually it is not difficult to differentiate between the two. Infectious diarrhea in infancy is always a serious disease, and therefore the prognosis should always be guarded. In treatment the first thing is thoroughly to clean out the intestinal tract; the best drug is castor oil. All food should be stopped for from twelve to twenty-four hours; water should be given freely during this period. The diet depends on the variety of the causative microorganism. When the attack is due to the facultative bacteria, dysentery and colon bacillus and streptococcus, the food should be largely carbohydrate; by this the organisms are prevented from forming toxic substances and their growth to a certain extent is inhibited. Sugar is preferable to starch, and lactose to the dextrin and maltose preparations. It is wise to give the milk sugar in barley water, which should contain from 0.75 to one per cent. of starch. It is necessary to add some protein food as soon as there is evidence of improvement, and this may be in either whey or casein; care being taken not to give so much as to neutralize the action of the carbohydrates. No fat should be given until convalescence is well established. In cases caused by the gas bacillus the indications are to cut down the carbohydrates and to introduce acid producing bacteria into the bowels; and these may be met by the use of buttermilk or, better, of mixtures containing three or four per cent. of lactose and from 1.5 to 2.5 per cent. of protein ripened with lactic acid forming organisms. A point which is of some aid in reaching a tentative conclusion as to the causative organisms until the appropriate measures for determining this have been carried out, is that in a given season the vast majority of cases of infectious diarrhea are due to the same organism. Another method, unscientific but often the only practicable one, is to give what seems to be the most rational diet and then observe the results. Irrigation of the bowels once or twice a day is a useful procedure, and in cases in which blood and pus persist in the stools after the evidences of toxemia have disappeared, injections of silver nitrate may be of service. The various so called intestinal antiseptics are of little or no value, and there is no serum which is of any avail, in this disease. Hot stupes or compresses applied to the abdomen will often relieve pain and tenesmus, though sometimes opium (preferably small repeated doses of paregoric or Dover's powder) is required. Stim-

ulants such as strychnine, caffeine, and camphor are frequently called for; alcohol is of doubtful value.

ANNALS OF SURGERY.

December, 1914.

Operative Treatment of Acute Epididymitis, by D. O. Smith and B. H. Frayser.—In their belief epididymotomy is a rational thing to do because it shortens the disease, relieves the severe, weakening, sickening pain at once, causes the temperature to fall and induration to disappear rapidly. The operation is as follows: After shaving the parts thoroughly they use a three per cent. alcoholic solution of iodine. External and parallel to the epididymis, they make an incision into the tunica vaginalis. This incision should be large enough to deliver the testicle. Examine the epididymis and make multiple punctures with a blunt probe in that portion which is inflamed. Gently massage, the part, wash with warm salt solution and return testicle to scrotum. Close the tunica with catgut and insert a narrow iodoform gauze drain. The external wound is closed with silk worm gut, using the subcuticular stitch—the drain passing out at the lower angle. After operation a sterile gauze dressing is applied and a suspensory bandage is used to support the scrotum. On the second day the wound is inspected and the iodoform drain removed. Daily dressings are not necessary. Usually on the fourth day the patients are up and allowed the freedom of the ward. On the fifth day a two per cent. alcoholic solution of iodine is applied over the line of incision, and the sutures are removed if silkworm gut has been used. In the majority of cases, patients return to duty on the sixth day.

AMERICAN JOURNAL OF TROPICAL DISEASES AND PREVENTIVE MEDICINE.

December, 1914.

Observations upon Human Filariasis, by Allen J. Smith and Damaso Rivas.—Two cases each of infestation by *Filaria loa* and *Filaria bancrofti*, respectively, are reported, and certain new procedures of value in the diagnosis of filariasis described. In making spreads of comparatively large amounts of blood—in order to secure greater certainty in the discovery of microfilariae, if present—it was found useful to concentrate the parasites in the following way: Two large drops of blood from the finger or ear lobe were mixed on a slide with one drop of one per cent. sodium citrate solution, the mixture drawn into a thick film over a restricted part of the slide, and the slide then placed in a covered dish in the incubator for half an hour. During this period the blood of the film slowly clotted, and in the open areas resulting from shrinkage of the clot, the microfilariae were observed to make their way with greater or less certainty, a dozen or more being thus sometimes included in a single microscopic field. In cases with but few microfilariae in the peripheral blood, the following procedure was found useful: From 0.1 to one c. c. of blood was obtained and placed in five c. c. of a two per cent. acetic acid solution, the mixture shaken gently for several minutes and centrifugated, and spreads were then made from the sediment. In no single instance in which this plan was followed, regardless of the hour of day or night when the specimen was obtained, did

the authors fail to find the microfilariae. The best period for finding the embryos in the peripheral blood was found to be about 8 a. m. to 4 p. m. in the case of *Filaria loa* and about midnight to 8 a. m. in the case of *Filaria bancrofti*.

Pellagra, by H. C. Clark.—An analysis of thirty-seven cases suspected of being pellagra, all encountered in the Canal Zone, is presented. Autopsies were made in all instances. Nearly all the patients were between the ages of thirty and fifty years, and there was a striking preponderance of women. The patients were chiefly vegetarians, and fish largely took the place of meat; the patients were all West Indian negroes. Clark has become convinced that an unassailable diagnosis of pellagra can as yet be established only by the coincident occurrence in an individual of a peculiar type of chronic gastrointestinal, cutaneous, and nervous symptoms that cannot be explained through the presence of any known pathological agent. The striking association of pellagra in the series of cases studied with such diseases as syphilis, chronic alcoholism, arteriosclerosis, starvation, chronic pelvic inflammations, and various types of chronic intestinal inflammation, leads Clark to suspect that the pellagra syndrome may frequently be a sequel to these conditions.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Special Meeting in the Borough of Brooklyn, December 7, 1914.

Dr. ROBERT E. COUGHLIN in the Chair.

Chronic Parenchymatous Nephritis with Myocarditis.—This case, reported by Dr. Henry A. Fisher, was published in the JOURNAL for February 6, 1915.

Dr. LOUIS F. BISHOP said that the suggestion of the use of kidney extract was extremely interesting. While personally he had had no experience with its employment, it seemed to him that this offered a hope of service which could not have been entertained a few years ago, when the real pathology of kidney disease was not so well understood. He referred to the excellent work done by various recent investigators, particularly to that of Professor Upfalls, of Leland Stanford University, a pathologist of distinction, who had collected the microscopical records of over a thousand cases of nephritis which had come to autopsy, in order to study the relation of arteriosclerosis to kidney trouble. His conclusion was that entirely too much attention had been paid to the kidney, since the nephritis was only a part of a general disease process. He himself had also reached the conclusion that the pathological conditions in the kidney and in the heart were the results of a general systemic affection. The phrase "disturbances of metabolism" had often been used in a vague sort of way, but in connection with the kidney it had a definite significance. It referred to the relation between the cells and their protein nourishment. The disease process, whether in the kidney or the heart, or in the form of arteriosclerosis, began

in the cells. He believed that in cases like the one described there was a disturbance of metabolism, and it seemed possible that kidney extract might bring about a change for the better.

Dr. EDWARD E. CORNWALL had had no experience with extract of kidney, but the case was an extremely interesting one. The extract might perhaps have an action beyond that of an enzyme; possibly it had an irritant effect which was conducive to diuresis. Digitalis had for a time acted well, but later it had failed, and almost immediately after the administration of this agent there was a marked increase in the flow of urine, which had continued as long as a certain amount was given daily. When this was diminished the urine also diminished, but as soon as the former doses were restored, the quantity of urine passed again increased. It seemed possible, from the results noted, that the extract might also be a cardiac stimulant, perhaps somewhat of the caffeine order.

Dr. GORDON R. HALL said that the case had been described as one of parenchymatous nephritis. It would be interesting to know whether the extract of kidney would act equally well in chronic interstitial nephritis, and it seemed probable that it would if this substance had a beneficial action on the heart. While in most instances the differential diagnosis between parenchymatous and interstitial nephritis could readily be made, there were certain cases in which this was a matter of considerable difficulty.

Doctor FISHER, in closing, said that from the manifestations presented, he had concluded that the case was of the parenchymatous variety. The physiologists who were responsible for the preparation, stated that all irritating matters had been extracted, and believed that such action as it had was due to the unchanged enzymes of the renal cortex. In a patient of Doctor Hunter's suffering from chronic nephritis (though he did not know which form) the extract of kidney had had a most marked beneficial effect. At intervals of weeks or months there would be an acute exacerbation, necessitating confinement to bed; when the employment of the extract for a few days would be attended by complete relief, and the patient would be about again, apparently in good condition.

Some Difficulties in Cystoscopy.—This paper, by Dr. CHRISTIAN C. A. LANGE, will be published in the JOURNAL.

Chronic Perityphilitis.—This paper, by Dr. JOHN EDWARD JENNINGS, will be published in the JOURNAL.

Dr. H. BEECKMAN DELATOUR considered it desirable that operations for appendicitis should be of such a character that the surgeon would be enabled to explore the abdominal cavity, if necessary. The McBurney incision confined the field of procedure within too narrow limits, and therefore should not be employed; he believed in the right rectus incision. If they found only a small appendix not distinctly inflamed, they should not rest content with the mere removal, but should seek further, when there would no doubt be discovered one or more of the conditions referred to in the paper. Even in acute appendicitis, if a suppurative process was not clearly in evidence, he believed it advisable to make such an incision as would render further exploration practicable. In

the case of a nurse who had made a good recovery after the removal of an appendix containing pus, three weeks after the operation the patient was seized with a violent attack indicating intestinal obstruction, and when the abdomen was opened there was found a band constricting the cecum. This band had no doubt always existed, but it had given rise to no trouble until an inflammatory process had developed. If in this instance a proper exploration had been made at the time the appendix was removed, a second operation would not have been necessary. Many of the patients operated on for appendicitis did not get well, because there was present a chronic colitis. Again, many of the cases of chronic intestinal trouble were due, not to this, but to inflammatory adhesions between the omentum and some part of the intestinal tract. The symptoms from time to time observed in appendicitis cases after appendicectomy were often due to intestinal adhesions which had formed after the removal of the appendix.

Dr. EDWIN HOWE FISKE believed that the reason why these veils, pericolic membranes, etc., to which reference had been made in the paper often became sources of irritation, was because of a bacterial infection derived from the intestinal tract. When veils about the cecum gave rise to trouble, there was also trouble in the rest of the large intestine. In cases of intestinal stasis there might be angulations at the hepatic, splenic, or sigmoid flexure, and he was convinced of the very great value of radiography for diagnostic purposes. While not infallible, the x ray would in many cases show where the obstruction in the large intestine was situated. If they operated simply in the region of the appendix, they were likely to have a recurrence of symptoms. Then, too, if the veils or adhesions were very extensive, recurrence might be met with, and fixation of the cecum did not cure the case; the pericolicitis would eventually return. Another important point was that in cases of this kind, which began as medical cases and after years came to operation, unless, after the operation, there was careful supervision of the patient for some months, a return of trouble was likely. In these an appropriate course of medical treatment after operation was just as essential as in gastric cases which had been operated upon.

Dr. RANSFORD E. VAN GIESON said it was a matter of sincere congratulation to know that they were returning to some of their old ideas, and to find that they were correct. The popularity of the operation for appendicitis, and also its necessity, had prevented proper attention to certain intestinal disorders which were not due to anything which occurred in the appendix. There were two or three points which ought always to be taken into consideration in making out the history of the case. It should not be forgotten that syphilis was not uncommonly the source of these, as of many other troubles, and posttyphoid lesions were sometimes met with. A number of years ago he had presented before the New York Pathological Society the specimens from a tuberculous case in which ulceration through the cecum had occurred. The appendix had not shared at all in the pathological process. The previous history of the patient was a matter of great importance.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Therapeutics of Dry Hot Air, with a Chapter upon the Incandescent Electric Light. By CLARENCE EDWARD SKINNER, M.D., LL.D.; formerly Professor of Thermo-aerotherapy at the New York School of Physical Therapeutics, etc. Third Edition. Thoroughly Revised to Date. Hammond, Indiana: Frank S. Betz Company, 1914. Pp. ix-336.

The author of this little book recognizes that many of the failures to secure satisfactory results with dry hot air have been due to its mistaken employment in conditions not amenable to its own special physiological action. Faulty technic is also considered often responsible. He therefore lays special stress on utilization, discussing in detail its effects and the apparatus used in the treatment of conditions such as rheumatism, local septic infection, sprains, pneumonia, nephritis, arthritis, deformans, gout, peritonitis, varicose ulcers, neuralgia, otitis, etc. Wright's recent studies on immunization have been found by the author greatly to elucidate the rationale of the effects of dry hot air. In the present, third, edition a new chapter appears upon the incandescent electric light. Skinner does not approve of substitution of the electric light treatment for dry hot air treatment of the body, but admits that local light applications may ultimately displace the dry hot air method in some local conditions. The book contains abundant reference to the author's clinical experiences with dry hot air, as well as other forms of treatment. It may be recommended as a sane, practical presentation of the subject of thermo-aerotherapy.

Die experimentelle Pharmakologie. Als Grundlage der Arzneibehandlung. Ein Lehrbuch für Studierende und Aerzte. Von Dr. HANS H. MEYER, Wien, und Dr. R. GOTTLIEB, Heidelberg, Professoren der Pharmakologie. Dritte, neubearbeitete Auflage. Mit 66 z. t. farbigen Textabbildungen und 1 farbigen Tafel. Berlin und Wien: Urban & Schwarzenberg, 1914. (Through Reiman Company, New York.) Pp. xx-505. (Price, Marks 15.)

The third edition of this highly regarded work appears without much change in the text, only brief additions here and there, representing new researches and discoveries, having been made. As in previous issues, the wise plan has been adopted of classifying drugs according to the systems or organs acted on, e. g., motor nerve endings, central nervous system, sensory nerve endings, vegetative nervous system, eyes, digestive tract, etc., with further subdivision according to the individual actions on these systems or organs required. This gives an opportunity for detailed discussion of the physiological facts and groundwork upon which an accurate intelligible exposition of the often complex phenomena of pharmacological action can alone be satisfactorily based. It is in the care taken in respect of these fundamental physiological sections, that the work stands above others dealing with the same subject. The sole disadvantage of the plan lies in the fact that in the case of certain important drugs, one is obliged to turn from one part of the volume to another to obtain a description of their various actions. The index, however, is well calculated to minimize this inconvenience. Of special interest are the discussions of the Meyer and Overton theory of narcosis, and of the vegetative nervous system in its various parts as a seat of drug action.

Diseases of the Rectum and Anus. A Practical Handbook. By P. LOCKHART-MUMMEY, F.R.C.S. Eng., Senior Surgeon to St. Mark's Hospital for Cancer, Fistula, and Other Diseases of the Rectum, and Surgeon to the Queen's Hospital for Children; etc. New York: William Wood & Co., 1914. Pp. vii-348. (Price, \$3.)

The author presents a thorough and literal discussion of the medical and surgical treatment of rectal diseases within the scope of a small book. He has purposely selected, one would think, subjects dictated by a choice from his wide personal experience, and has produced a work eminently suitable within those limits for the general practitioner.

With the exception of the chapters on carcinoma and

strictures, the writer's familiarity with American literature on this subject would give one the impression that this book was "made in America" in spite of its assertion of English authorship. Regrettably, the chapters on carcinoma and strictures are not broad enough in their scope of operative procedures, which he could have so aptly described. They are restricted to the author's personal operations, or to an individual choice, which does not include some of the well recognized American operations of Bacon, Kelly, and Murphy, for malignant and nonmalignant strictures of the rectum. He has deftly modified the lateral incision of Hartmann for reaching the rectum, and utilized the ideas of Allingham, Weir, Lisfranc, Maunsell, Perron, and Quenu for the excision of a malignant growth and replacement of the rectum.

Syphilitic stricture of the rectum is more commonly seen in this country, than, he would lead the reader to believe, in England. Possibly our practitioners recognize the disease more frequently than our English confrères. Lockhart-Mummary does not include the very excellent galvanopuncture treatment of hemorrhoids suggested by Kelsey, which should supersede the carbolic acid injection method in the work of any fair minded operator.

Medical Jurisprudence. A Statement of the Law of Forensic Medicine. By ELMER D. BROTHERS, B.S., LL.B., Member of the Chicago Bar; Lecturer on Jurisprudence in the Medical and Dental Departments of the University of Illinois, and in John Marshall Law School. St. Louis: C. V. Mosby Company, 1914. Pp. 301. (Price, \$3.)

It is gratifying to review a book whose makeup and arrangement offers so much to commend. Lecturing for twenty years on a subject affords an author exceptional qualifications for presenting the matter with axiomatic completeness. This Mr. Brothers has done and well done. The style is clear and graceful; citations and illustrative incidents are well chosen, sustaining interest and opening up vistas of knowledge which lure one to continue reading. Personal familiarity with some of the literature of the law (notably "Blackstone"), enables us to appreciate the selection of points fundamental to "law," also the peculiar charm of diction found in certain of the earlier masters of legal literature likewise herein displayed.

The author's selection of modern principles and methods of procedure appear to be chosen with full recognition of the scope of statutory regulations as bearing upon the relationships of the physician to this vast aggregation of established precedents. The subject matter is so well condensed that it is entirely within the power of the busiest practitioner to read the entire book in an evening. He would be more than well repaid by doing so, not merely once but oftener. It is a pleasant task and decidedly informative in many directions bearing upon constantly recurring problems.

More than this, to omit familiarizing oneself with these subjects leaves one in a state of perilous ignorance which at any moment may induce blunderings leading to catastrophes. For example it is of the most urgent importance to be clearly aware of the facts set forth in the Introduction; on law, municipal law, civil law, criminal action and civil suits, and the like.

Then follow (twenty-six chapters in all) evidence; expert witness, hearsay; privileged communications. This chapter it is particularly desirable to read. Then come license; contractual relations; employment and compensation; agreement for surgical operations; In these days of secular accusations as to "fee splittings" and the like, it is imperative to know what one's duties and privileges actually are.

The chapter on *Res ipsa loquitur*—(the thing speaks for itself) is peculiarly illuminating, having its basis in the nature of our mental processes; knowledge not being confined to the evidence of our senses; causes being clearly inferred from obvious effects; naturally without conscious effort; given facts presupposing other correlated facts both prior and consequent, etc.

Three chapters are upon civil practice; the one on criminal malpractice is valuable and woefully misunderstood by many who are perpetually subjecting themselves to penalties in the most innocent manner. False representations are made plain, fraud, intent, actionable misrepresentations, confidential relations and special knowledge, certainties of proof, etc.

A chapter on anesthetics is helpful; then follow two

chapters on insanity; one in criminal and one in civil laws, in which much is made plain with which the medical man is unfamiliar; so of the remainder. The book is confidently recommended to all who appreciate the need for information on the law in its special application to medical practice.

Interclinical Notes.

Readers of the February *Current Opinion*, if they feel it necessary to improve their minds before enjoying the lighter portions, including the well selected cartoons, may begin with a summary of our knowledge of superphysics. They may then proceed to the physiological explanation of the formation of bad habits, to the conclusions based on the theories of the late Admiral Mahan, to a French appreciation of August Weismann, to Dr. T. Clave Shaw's analysis of the pathological state of mind of Great Britain and Germany in the present crisis, etc.

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After some serious reading, the purchaser of *Current Opinion* for February will enjoy an abstract of the *Dama*. Polygamy, now running in New York, and perhaps the analysis of Christianity and the religion of Japan with their attitude toward war. He will certainly like the gossip concerning Emile Verhaeren, Madison Cawein, Maeterlinck, Abt Vogler, Harold Bell Wright—best seller of all, we understand—Compton Mackenzie, Henry James, Knatschke, the newest iconoclastic compatriot of Treitschke and Nietzsche, Granville Barker *et al.*

* * *

Apropos of Granville Barker, who is proud of having dragged the art of the *mise en scène* as far from the ideals of Belasco as it can well be, his sophistries are perfectly obvious to all but our amiable public. The restoration of the apron to the stage, the use of steps and entrances and exits near the audience, the gaudy gilt paper proscenium, the scenery done in fourteenth century style, what are all these but reversions, a devolution of dramatic production? The players would not stand any personal application of the Barker notions, that is evident; they have their pretty clothes, wigs, and shoes, their rouge, paint, and powder. We are glad to note that they have good voices and a delightful accent, and Shaw's superb dialogue gets full value. This brings us finally to our point; all our laryngologists should hear the Barker productions. In fact, unlike children, they are better heard than seen. English is a beautiful tongue when pronounced with reverent care.

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Empty Pockets, the serial story now running in the *Red Book* which we have said reminded us in a way of Dickens in its conveyance of the New York atmosphere, is by our eminent colleague, Dr. Rupert Hughes. Doctor Hughes is one of the few American physicians who have found it remunerative to drop the thermometer and stethoscope for the typewriter. Although he is not usually very heavily laden, the ghost walks regularly along literary paths, and possesses one advantage over his medieval predecessors in not disappearing at cockcrow.

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Discussion of the low birth rate of France seems to us to be without interest or value unless a careful comparative study is made of the nature of her adult population; we mean the percentages of alcoholics, criminals, insane, feeble-minded, etc., compared with those of Germany, Ireland, the United States, for example. If there are found to be fewer of these expensive and worse than nonself-supporting elements in France than elsewhere, we should approach French statistics of birth with a new respect.

* * *

Meetings of Local Medical Societies.

MONDAY, February 15th.—New York Academy of Medicine (Section in Ophthalmology); Yorkville Medical Society; Medical Association of the Greater City of New York; Medical Society of the County of Erie; Elmira Clinical Society.

TUESDAY, February 16th.—New York Academy of Medicine (Section in Medicine); Tompkins County Medical Society; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburgh Medical Association; Oswego Academy of Medicine.

WEDNESDAY, February 17th.—New York Academy of Medicine (Section in Genitourinary Diseases); Alumni Association of City Hospital, New York; Schenectady Academy of Medicine; Women's Medical Association of New York City (New York Academy of Medicine); Medico-legal Society, New York; Buffalo Medical Club; Northwestern Medical and Surgical Society of New York.

THURSDAY, February 18th.—New York Academy of Medicine (stated meeting); Auburn City Medical Society; Geneva Medical Society; German Medical Society, Brooklyn; Æsculapian Club of Buffalo; New York Celtic Medical Society.

FRIDAY, February 19th.—New York Academy of Medicine (Section in Orthopedic Surgery); Mount Vernon Medical Society; Clinical Society of the New York Post-Graduate Medical School and Hospital; New York Microscopical Society.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending February 3, 1915:

Bryan, W. M., Passed Assistant Surgeon. Granted four days' leave of absence, on account of sickness, from January 19, 1915. Clark, Taliaferro, Surgeon. Directed, on request of State and local health commissioners, to proceed to Valparaiso, Ind., and other points in Porter and adjoining counties to make a complete survey of school sanitation, including mental and physical conditions of school children. Duffy, B. J., Assistant Surgeon. Granted four months' leave of absence, from January 27, 1915. Foster, A. D., Surgeon. Granted seven days' leave of absence, from January 30, 1915. Francis, Edward, Surgeon. Granted seven days' additional leave of absence from January 21, 1915. Frost, W. H., Passed Assistant Surgeon. Granted fourteen days' leave of absence, from February 6, 1915. LePrince, J. A. A., Sanitary Engineer. Directed to proceed, upon receipt of instructions from the medical officer in charge of malaria investigations, to such points in the southern States as he may designate for the purpose of making malaria surveys and collecting specimens and other data. Lloyd, B. J., Surgeon. Directed to proceed to various places in the State of Washington to advise with local authorities as to the advisability of the passage of rat-proofing ordinances and catching rats for bacteriological examination. Lumsden, L. L., Surgeon. Detailed, on request of the Medical and Chirurgial Faculty of Maryland, to deliver an address on rural sanitation at a meeting of the "Health Week," to be held in Baltimore, February 13, 1915. McIntosh, W. P., Surgeon. Relieved from duty in charge of the Marine Hospital at Portland, Me.; granted two months and thirteen days' leave of absence from February 2, 1915; placed on waiting orders, effective April 15, 1915. Miller, K. E., Assistant Surgeon. Directed to accompany the officers and crew of the Coast Guard Cutter *Itasca*, when transferred to the Coast Guard Cutter *Onandaga*. Mitzmain, M. B., Technical Assistant. Directed to proceed, upon receipt of instructions from the medical officer in charge of malaria investigations, to such points in the southern States as he may designate, for the purpose of making malaria surveys, and collecting specimens and other data. Neill, M. H., Assistant Surgeon. Granted two days' leave of absence, on account of sickness, January 19-20, 1915. Rucker,

W. C., Assistant Surgeon General. Detailed, on request of the Medical and Chirurgurgical Faculty of Maryland, to deliver an address on bubonic plague at a meeting of the "Health Week," to be held in Baltimore, February 12, 1915. **Safford**, M. V., Assistant Surgeon. Detailed to cooperate with the Massachusetts Child Labor Committee and the State Board of Labor and Industries in studies of the influence of occupations on persons during the period of adolescence. **Sayers**, R. R., Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and ordered to proceed to Tompkinsville, N. Y., and report to the commanding officer of the Coast Guard Cutter *Seneca*, relieving Assistant Surgeon Slaughter. **Slaughter**, W. H., Assistant Surgeon. Relieved from duty on the Coast Guard Cutter *Seneca*, and ordered to report to the chief medical officer at Ellis Island, N. Y., for duty. **Taylor**, H. A., Technical Assistant. Directed to proceed, upon receipt of instructions from the medical officer in charge of malaria investigations, to such points in the southern States as he may designate for the purpose of making malaria surveys and collecting specimens and other data. **Treadway**, W. L., Assistant Surgeon. Directed to proceed to Valparaiso, Ind., and report to Surgeon T. Clark for duty in connection with a sanitary survey of schools, including the physical and mental condition of school children in Porter County, Ind.

Resignation.

The resignation of Assistant Surgeon Benedict J. Duffy accepted by the President to take effect May 26, 1915.

Board Convened.

Board of commissioned medical officers convened to meet at the Bureau at the call of the chairman, for the purpose of grading the examination papers of Pharmacists L. W. Ryder and G. W. Illis, to determine their fitness for promotion to the grade of pharmacists of the First Class. Detail for the board: Assistant Surgeon General A. H. Glennan, chairman; Assistant Surgeon General L. E. Cofer, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending February 6, 1915:

Bailey, William O., First Lieutenant, Medical Reserve Corps. Relieved from duty at the Army Medical School, Washington, D. C., and will proceed to his home and, upon arrival, report by telegraph to the Adjutant General of the Army. **Bourke**, James, Captain, Medical Corps. Relieved from duty at Fort Crockett, Texas, and will proceed to Texas City, Texas, and report in person to the commanding general, Second Division, for assignment to duty, with station at Fort Wayne, Michigan. **Casper**, Joseph, Captain, Medical Corps. Will proceed to Texas City, Texas, and report in person to the commanding general, Second Division, for assignment to temporary duty. **Cook**, George W., Captain, Medical Corps. Granted one month's leave of absence in addition to that already granted. **Davis**, A. O., Captain, Medical Corps. Granted three months' leave of absence on or about April 1, 1915. **Lavanture**, Lewis A., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Missoula, Montana, and will proceed to his home; is relieved from active duty in the Medical Reserve Corps, to take effect upon the expiration of leave of absence for two months and nineteen days which has been granted him, to take effect February 1, 1915. **McCornack**, Condon C., Captain, Medical Corps. Granted one month and fifteen days' leave of absence. **McDaniel**, Adolphus A., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Crockett, Texas, and will proceed to Texas City, Texas, and report in person to the commanding general, Second Division, for assignment to duty. **McDiarmid**, Norman L., Captain, Medical Corps. Will proceed to Texas City, Texas, and report in person to the commanding general, Second Division, for assignment to temporary duty. **Parce**, Alexander D., Captain, Medical Corps. Relieved from duty at the Letterman General Hospital, the Presidio of San Francisco, Cal., and will proceed to Texas City, Texas, and report in person to the commanding general, Second Division, for assignment to

duty in that division, with station at Fort Benjamin Harrison, Indiana. **Price**, Thomas I., First Lieutenant, Medical Reserve Corps. Relieved from duty at the Army Medical School, Washington, D. C., and will proceed to his home and upon arrival report by telegraph to the Adjutant General of the Army. **Snyder**, Howard McC., Captain, Medical Corps. Will proceed to Texas City, Texas, and report in person to the commanding general, Second Division, for assignment to temporary duty in that division. **Trasher**, Benjamin O., First Lieutenant, Medical Reserve Corps. Relieved from duty on the transport *Cristobal* and will return to Galveston, Texas, and report to the commanding officer, Port of Embarkation, for duty.

Births, Marriages, and Deaths.

Born.

Whelan.—In Youngstown, Ohio, on Monday, February 1st, to Dr. and Mrs. Raymond E. Whelan, a daughter.

Married.

Brown.—**Robie**.—In Bath, N. Y., on Saturday, February 13th, Dr. McCarter Brown and Miss Mary Kingsley Robie. **Condrick**.—**Cosgrove**.—In Brockton, Mass., on Monday, February 1st, Dr. John J. Condrick and Miss Edith J. Cosgrove. **Curtis**.—**Hawkins**.—In Lake Bluff, Ill., on Wednesday, January 27th, Dr. Arthur H. Curtis, of Chicago, and Miss Mary Hawkins. **O'Brien**.—**Herrig**.—In Pasadena, Cal., on Friday, January 15th, Dr. H. J. O'Brien, of Superior, Wis., and Miss Pearl Herrig. **Samson**.—**Baines**.—In Detroit, Mich., on Saturday, December 5th, Dr. James Samson and Miss Lillian Baines.

Died.

Addis.—In Rineyville, Ky., on Tuesday, January 26th, Dr. Charles Addis, aged thirty-six years. **Bird**.—In New York, on Sunday, January 31st, Dr. John Henry Bird, aged seventy-six years. **Boutelle**.—In Danvers, Mass., on Monday, January 25th, Dr. Harry C. Boutelle, aged thirty-nine years. **Child**.—In Purcell, Okla., on Wednesday, January 20th, Dr. J. S. Child, aged sixty-seven years. **Coates**.—In Philadelphia, on Monday, February 1st, Dr. Truman Coates, aged sixty-three years. **Courtney**.—In Cincinnati, Ohio, on Monday, February 1st, Dr. Edmond Courtney. **Dixon**.—In Fayetteville, Ga., on Wednesday, January 27th, Dr. Robert K. Dixon, aged thirty years. **Elder**.—In San Antonio, Texas, on Sunday, January 24th, Dr. S. S. Elder, aged seventy-nine years. **Ferrish**.—In Sherburn, Minn., on Friday, January 22d, Dr. C. J. Ferrish. **Furbeck**.—In Denver, Colo., on Wednesday, January 27th, Dr. George H. Furbeck, aged forty-three years. **Gray**.—In Bloomfield, Ind., on Sunday, January 24th, Dr. John Wesley Gray, aged seventy-five years. **Hoag**.—In Connersville, Ind., on Sunday, January 24th, Dr. John H. Hoag, aged sixty-one years. **Hungerford**.—In Philadelphia, on Monday, February 1st, Dr. George H. Hungerford. **Johnson**.—In Litchfield, Ill., on Saturday, January 23d, Dr. Charles W. Johnson, aged sixty-seven years. **Moore**.—In St. Louis, Mo., on Thursday, January 28th, Dr. William Grant Moore, aged sixty-one years. **Packer**.—In Brooklyn, on Monday, February 1st, Dr. Andrew Dickson Packer, aged thirty-seven years. **Pollmann**.—In St. Louis, Mo., on Saturday, January 23d, Dr. Ludwig P. Pollmann, aged sixty-nine years. **Rodenstein**.—In New York, on Sunday, January 31st, Dr. Louis A. Rodenstein, aged eighty-one years. **Russell**.—In St. Louis, Mo., on Thursday, January 28th, Dr. C. M. Russell. **Russell**.—In Lewistown, Me., on Wednesday, January 27th, Dr. Ernest W. Russell, aged fifty-six years. **Thurston**.—In Beeville, Texas, on Monday, January 25th, Dr. D. M. Thurston, aged sixty-two years. **Viehe**.—In Evansville, Ind., on Monday, February 1st, Dr. C. H. Viehe, aged seventy-eight years. **Wedding**.—In Kansas City, Mo., on Wednesday, January 27th, Dr. Columbus V. Wedding, aged sixty years. **Weis**.—In Dayton, Ohio, on Tuesday, January 26th, Dr. Henry Weis, aged eighty-three years. **Williams**.—In Duluth, Minn., on Thursday, January 28th, Dr. F. P. Williams, of Boylston, Wis.

New York Medical Journal

INCORPORATING THE
Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843

VOL. CI, No. 8.

NEW YORK, SATURDAY, FEBRUARY 20, 1915.

WHOLE No. 1890.

Original Communications.

DRAINAGE OF THE SEMINAL VESICLES.*

Operative Technic, End Results, and Other Considerations. A Report of Fifty Surgical Cases.

By J. BENTLEY SQUIER, M. D., F. A. C. S.,
New York.

The material upon which this study is based represents a series of fifty consecutive operations upon the seminal vesicles, a series which includes a part of my operative work upon these organs, in an endeavor to reach definite conclusions as to the therapeutic value of vesicle drainage in patients suffering from chronic seminal vesiculitis. The work has extended over a period of two years, sufficient time having elapsed in many instances to allow of forming an estimate of the permanency of operative result. I was stimulated to undertake the work by reason of the enthusiasm which Dr. Eugene Fuller has displayed for the results obtained by his operation.

Properly to study and appreciate the pathology of diseased vesicles, it seemed necessary to develop a technic which would allow of a visual exposure of the organs. This was deemed advisable from the purely surgical aspects of drainage, as well as the equally important purpose of determining the complete pathological changes encountered. It was early appreciated that the patients who might be presumably benefited by vesicular drainage could be grouped under three main symptom complexes:

First, those with a frank Neisserian history and a continuous or intermittent urethral discharge and pyuria.

Secondly, those in whom perineal pain or rectal symptoms predominated.

Thirdly, those with frank Neisserian history and who presented arthritic symptoms or other systemic manifestations of chronic infection.

PATHOLOGICAL CONSIDERATIONS.

It has been variously estimated that from seventy-five to ninety per cent. of the cases of acute specific urethritis have a coincident associated infection of the prostatic urethra and the prostatic ducts. The lumen of the ejaculatory ducts is relatively and absolutely larger than the prostatic ducts and, *a priori*, coincident vesicular infections must be numerically as frequent as infections of the prostatic ducts and of the prostate.

In any event, if the vesicle is infected, the chances of a spontaneous cure are extremely remote. When we consider the peculiar anatomy of the vesicles with less than four per cent. as simple, straight tubes and the remaining ninety-six per cent. having a varying length and capacity, due to twists and diverticula, it is not surprising that when they become infected, resolution by natural drainage through the ejaculatory ducts is mechanically impossible. Therefore the vesicles become the site of chronic inflammation with the products of infection retained under pressure within a multilocular organ, and characterized by focalization, extreme chronicity with acute exacerbations, and protean systemic manifestations. In addition, chronic focal infections of the vesicles give rise to well marked local and reflex disturbances of varying degrees of intensity.

The remote or systemic manifestations are due to the constant discharge of infectious emboli into the circulation and their lodgment at various parts of the body. The reflex symptoms are of toxic origin and represent all gradations of mental depression or neurasthenia. The local symptoms are due to direct inflammatory reaction with infiltration of the perivesicular tissues, resulting in lymphatic block, nerve pressure, ureteral compression, interstitial spermatoecystitis, and annexal induration.

A very important factor in the pathology of chronic vesiculitis is the additional element of mixed infection, producing a low grade inflammatory process, with pyogenic bacteria as the predominant type. Bacteriological determination of the contents of diseased vesicles both by smear and culture gives such a multiplicity of results as to allow of but two conclusions: 1. With the exception of acute suppurative cases, the gonococcus is regularly absent; 2, there is an almost constant growth of pyogenic bacteria. In like manner, the gonorrheal complement fixation test gives as yet no definite data.

The apparent absence of the gonococcus is not remarkable. It is apparently the original invading organism, but is shortly supplanted by a variety of pathogenic organisms. It may be that the gonococcus within the vesicles undergoes a mutation depending upon alterations of its environment. Variations and transformation in the biological characteristic of different species of bacteria is no new idea. Buerger first discussed the phenomenon of mutation of form and biological properties in the pneumococcus in 1907. Rosenow's more recent observations of transmutation of the pneumococcus

*Read before the Gynæturinary Section, New York Academy of Medicine, December 16, 1914.

into hemolytic streptococci and *vice versa*, however, are epoch making in their importance. If transmutation follows changed conditions *in vitro*, the modifying effect of environment *in vivo* may change the specific character of the original invader or invaders. Again, Rosenow demonstrated that the mutants showed selective tissue affinity; in other words, the variants from changes in cultural environment possessed specific localizing properties. In one case the joints were affected, in another the endocardium, etc. These bacteriological phenomena offer a ready explanation of the supervention of one clinical type of infection on another. It is not too much to presume that the gonococcus may mutate, and what is in the beginning a Neisserian seminal vesiculitis, is latterly a streptococcic infective process.

My operative findings have apparently demonstrated that the vesicles may show two distinct pathological changes. On the one hand, the inflammatory reaction is more closely limited to intrinsic changes in the vesicle, with the production of inflammatory products plus the usually contained secretion. The result is a marked distention with or without occlusive changes in the ejaculatory duct, and in any event leading to the retention of infectious products under pressure. This type of pathological vesicle has very little perivesiculitis or induration, and the vesicle is typically a succulent, distended organ. This morbid condition obtains indefinitely, remaining practically unchanged, or later there are certain changes brought about producing a dense form of perivesiculitis. These accessory reactions represent the attempt of Nature to wall off the infection by scar tissue. Again, the wall of the vesicle itself may be thickened and indurated in the form of an interstitial spermatoecystitis. At any period in the course of these inflammatory changes material may obtain entrance into the circulation and as emboli find lodgment in the joints, kidney, or endocardium.

The reason the joints are so frequently involved seems to rest upon a number of factors. First, the synovial membrane is a tissue not particularly resistant to infectious processes; secondly, the synovial fluid is lymphocytic rather than leucocytic and does not offer a marked phagocytic power; thirdly, the almost constant irritation of joint surfaces incident to locomotion, etc. A clinical fact not to be lost sight of is that disability in a joint very readily makes its presence known, whereas the same is not true of an infection of the heart or kidney, where it may exist for years without producing symptoms.

On the other hand, the inflammatory reaction may from the beginning produce only extrinsic changes in the form of an agglutinative or plastic perivesiculitis, the result being the production of a fibrous or sclerosed vesicle with peripheral induration. The plastic material in and about the vesicle and postprostatic space acts very much as a plaster of Paris bed encasing vesicles, terminal ureters, prostate, and adjacent rectum. The upper end of the vesicle, partly covered by peritoneum, is large and rounded and lies at a considerable distance from the midline and behind the lower end of the ureter. When the perivesicular changes are extensive or diffuse, definite compression and kinking of the terminal ureter may be produced. In addition the

tissue investment between the vesicle and base of the bladder is not particularly resistant to infection, and reactive changes in the form of a basal cystitis or trigonitis may occur. The local effort at encapsulation of the infectious nidus is usually pronounced, and upon the intensity of reaction depend the extent and variety of the symptoms produced. The symptoms are usually local and due to lymphatic block, nerve pressure, or stenotic changes in the terminal ureter or infection of the trigone.

From these two main types of pathological vesicles, there may occur variations, depending upon modifying circumstances in the mode and character of infection. The symptoms of mental depression, melancholia, etc., are probably the result of toxic absorption and may also arise from a vesicle where the infective changes are incident to prolonged erethism from continued masturbation.

However, as these graduations in the pathological process are not hard and fast, the symptomatology in certain instances may be mixed. In considering the effect of pathological changes in the vesicles and their relation to clinical symptoms, an important matter to keep in mind is that the vesicular infection is often only a part of the trouble. Changes in the prostate or deep urethra may be quite as important in the production of local or systemic symptoms as the vesicle, and that with the vesicle drained or excised, the associated disease of the prostate or urethra may preclude recovery unless these are also attacked. The implication of the prostate and deep urethra may be manifested by an intermittent or persistent pyuria, either alone or associated with local or remote symptoms.

OPERATION.

The technic which has been followed in this series has been published in more or less detail in the *Cleveland Medical Journal* for December, 1913. As further experience has evolved a few changes in this technic it may be pertinent to outline the salient features of the operation.

The exaggerated perineal urethrotomy position is used. The skin incision is the inverted U shaped perineal prostatectomy, the apex being at the mid perineal point with the lateral arms extending toward the ischial tuberosities (Fig. 1). Retraction of the skin flap downward exposes the median perineal tendon, before division of which the fossæ on either side are opened by blunt dissection (Fig. 2). This is best accomplished by keeping rather closer to the bulb than to the rectum while performing the dissection.

After division of the median tendon, the attachments of the rectum to the urethra, the rectourethral attachments present. Before division of these, further blunt dissection of the lateral fossæ is carried out, so that by a finger introduced in either one, the posterior surface of the prostate is plainly felt (Fig. 3).

At the apex of the prostate, it is possible by gentle burrowing of the finger to enter the fossa of the opposite side, thus making it possible to hook the finger around the upper limit of the muscular attachments of the urethra to the rectum (Fig. 4). These muscular attachments are now divided close to their insertion into the urethra (Fig. 5). At the point

of insertion these fibres are distinctly tendinous, and the line of division should follow this tendinous line. If division takes place through the muscular tissue, opening into the rectum will become increasingly frequent; also, in following this tendinous line of insertion during division, the apex of the prostate is reached at a point where it is easiest to begin separ-



FIG. 1.—Perineal skin incision.

ating the deep muscles of the perineum, namely the encircling fibres of the levator ani, from off the prostate.

Having divided the urethrectalis muscle, the muscular fibres covering the posterior surface of the prostate are pushed laterally and posteriorly by blunt dissection, as in the process used in perineal prostatectomy, but carried out to a deeper extent, so that the dissection between the rectum and prostate and bladder base is well defined. I have found that a common mistake in my early operations was making an attempt to bring the vesicles into the visual field before this dissection had been thoroughly carried out.

When this dissection is complete, the sulcus between the vesicles is easily appreciated by touch. A deep posterior tractor is now placed in the wound, the most efficient instrument being a flexible ribbon tractor, one and a half inch in width, which can be bent to the desired length, a folded piece of gauze being placed between it and the rectum. The next step is visualizing the vesicles. This is accomplished by placing two traction sutures of stout pedicle silk through the base of prostate at its junction with the bladder base (Fig. 6). Traction upon these sutures, downward and upward, pulls the prostate down and rotates its base upward, bringing the under surface of the bladder into view. If the vesicles are distended, they may now be recognized by the characteristic bulging beneath the fascia of Desnonvillier covering them (Fig. 7). However, in cases where any considerable amount of perivesicular inflammation exists, the fascial coverings may be so thickened as to obliterate this bulging effect.

The facility of separation of this fascial covering from the vesicles will be in direct proportion to the existent perivesiculitis. In any event picking up the fascia with mouse tooth forceps, and carefully snipping it until the proper line of cleavage between it and the vesicle is entered, is usually possible without opening into the vesicle. The procedure is analogous to opening into the peritoneal cavity and

guarding the gut from possible injury (Fig. 8).

After opening into the vesicular space, and before incising the vesicle, I believe it advisable fully to free the vesicle from surrounding adhesions with wide division of the covering fascia, thereby releasing the inflammatory compression which has been applied to the organ (Fig. 9).

The vesicles having been exposed, they should be freely drained. It is here that an operation which allows of visual examination of the organs becomes of utmost advantage. Not only should an incision be made into the vesicle and ampulla of the vas, but any existing diverticula not drained by the primary incisions, should be punctured as well. Subsequent drainage of the organs following closure of the wound is provided for by suturing a rubber tube of 20 F. calibre into either vesicle, and draining the perivesicular spaces by gauze wicks (Fig. 10).

Completion of the operation includes suture of the rectum to the under surface of urethra and closure of the skin wound, allowing drainage tubes and wicks to make an exit at the other angles of the skin incision (Fig. 11). The operation should be performed with as little cutting of the deep muscles of the perineum as possible and careful avoidance of undue traumatism to or cutting of any nerve filaments. The superior terminal divisions of the pudic nerves occupy the anterior perineal triangle,

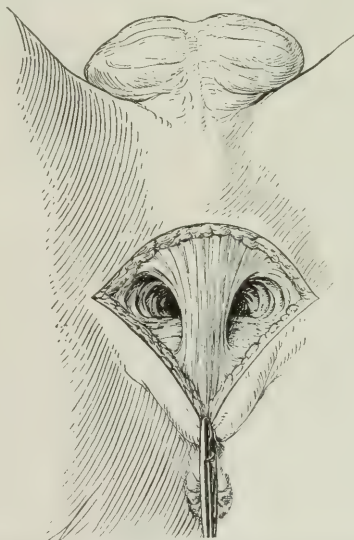


FIG. 2.—Skin flap retracted, showing fossae on either side of median perineal tendon which have been opened by blunt dissection.

and injury to them may produce functional disturbance in the action of the ischiocavernosi muscles and thereby lessen the power of erection.

SUMMARY OF CASES OPERATED IN.

According to the previously outlined classification of cases based upon the cardinal symptoms presented, three groups may be differentiated. The grouping is necessarily an arbitrary one, since many of the patients have presented symptoms of one or more

of the groups. However, for the sake of study, these groups are to be recognized as follows:

1. *Pus groups*.—(a) Those in which suppuration is the predominant feature. This will include definite abscess formation within or around the vesicles. The surgical indication in such cases is so obvious that only mention is made of it. However, there is a borderline group, namely those which develop an acute seminal vesiculitis and prostatitis during the course of a specific urethritis which does not terminate in localized abscess, which I am inclined to believe would fare better if subjected at once to operation rather than be treated by expectant measures.

(b) Cases of recurrent epididymitis following acute urethritis and vesiculitis, the operative indication being vesicle drainage combined with epididymotomy.

(c) The chronic type of seminal vesiculitis, often rather difficult to diagnose, as the symptoms are not so well pronounced as in the acute form. They may have a history of urethritis, or stricture; discomfort in the perineum, increased upon difficult defecation; tenesmus; frequent erections without sexual stimulus and frequent nocturnal emissions, often bloody in character; and the presence of pus in the semen. The operative indications in these cases have to be decided upon their individual merits, according to the effect the symptoms are having upon the patient's general health, since it is perfectly possible for a patient to suffer from the foregoing without greatly impairing his general health or sexual activity.

2. *Pain group*.—A group in which persistent perineal pain has seemed a sufficient indication for operation. Many of the symptoms enumerated under (c) of the preceding group are a part of the case histories of this group.

3. *Rheumatic group*.—Included under this heading are the cases presenting joint lesions, where the presenting focal infection was within the vesicle.

It must be appreciated, however, that before a definite conclusion can be arrived at as to the influence a diseased vesicle may exert upon the production of a chronic arthropathy in any given case, a very great amount of differential diagnostic exclusion should be considered.

The case histories of the respective groups follow and best illustrate why the various cases have been placed in any special group.

CASE I (15056). 36. S. Chief complaints: Burning sensation in perineum, thick discharge from urethra during defecation. Venereal history: Lues eighteen years ago. Internal medication for two or three years. Gonorrhea fifteen years ago—long attack—two years under treatment; three years ago second infection—treated six months. Never free from morning discharge since. Examination: Thin urethral discharge in which gonococci could not be demonstrated. Per rectum: Prostate and vesicles massed together by induration. Antioperate treatment for the past year by a competent physician with only partial relief of symptoms.

Operation September 9, 1913. Operative findings: Prostate swollen. Vesicles difficult of exposure on account of extensive perivesicular exudate. Walls of vesicles thickened—lumen contracted. Postoperative note, October 22d:

Symptoms relieved. No discharge from urethra or burning sensation. July 28, 1914: Reported no return of old symptoms, perineal pain, nor discharge during defecation, but lately frequent nocturnal emissions. Examination per rectum: Prostate normal in outline, vesicles not palpable. Only a few symplexia in urine passed after prostatic massage.

Naval hospital report. 6. H. L. D. Admitted with diagnosis of gonococcus infection unqualified (venereal prostatitis). History of gonorrhea for about three years. On

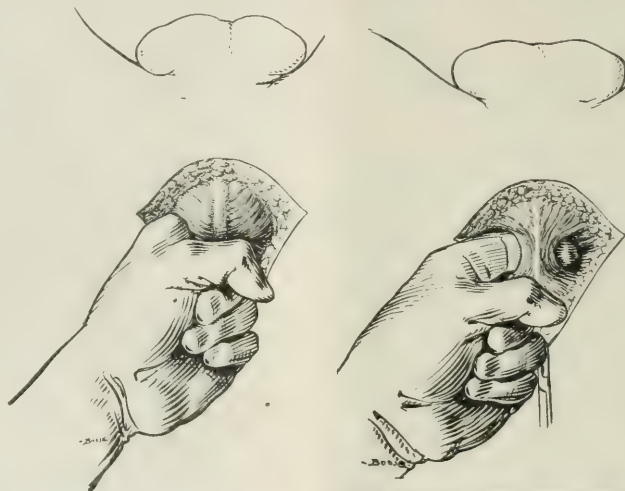
FIG. 1. Hooking finger around upper limit of muscular attachments between urethra and rectum.

admission, patient had an enlarged indurated prostate with a palpable right vesicle. Operation, December 9, 1913, vesiculotomy. Patient discharged to duty, well, February 6, 1914.

CASE II (4090). 27. M. Chief symptoms: Chronic urethral discharge. Pain in bladder neck and rectum. Duration: Ten months since infection. Two previous attacks of acute specific urethritis six and four years ago. Examination: Thin urethral discharge containing gonococci. Per rectum, palpable vesicles; pus laden fluid expressed by massage of prostate and vesicles. Remarks: Under constant treatment since attack commenced.

Operation, March 25, 1914: Vesicles found distended with pus laden fluid. Extrinsic changes not marked. Culture of fluid negative as to gonococci. Postoperative record: Uneventful convalescence. Discharge disappeared and pain left during healing of wound. Left hospital April 7—condition improved. Note: May 19th, only remaining symptoms—a few flakes in first portion of urine voided.

CASE III (01656). 35. S. Chief complaint: Chronic urethral discharge. Discharge from urethra following defecation. Duration, two years following acute specific infection. Examination: Chronic urethritis and seminal vesiculitis. Constant treatment since symptoms developed. No gonococci found in urethral discharge or fluid expressed by massage of prostate and vesicles, pus and Gram positive cocci present.



Operation, December 11, 1913. Findings: Vesicles thin walled and distended. Extrinsic changes not marked. Cultural examination of fluid from vesicles showed staphylococci. Postoperative record: His convalescence was marked by a profuse hemorrhage from the wound on the tenth day after operation which necessitated repacking of wound. January 9, 1914, discharged from hospital. December, 1914, patient free from symptoms since leaving hospital and considered himself cured.

CASES IV (5845), V (13040), VI (8353), and VII (01747). This group of cases were operated in during the acute invasion of the vesicles by gonorrheal infection in an attempt to save the patients from the long aftertreatment necessary to approximate a cure by nonoperative methods, as well as possible local and systemic complications. In each case the symptoms presented were more or less alike. Painful frequent micturition, pain in rectum, etc. They presented the classical picture of acute prostatitis and vesiculitis. The operative findings were swollen prostates and distended vesicles with much perivesical inflammatory exudate. In each case incisions were made into the lateral prostatic lobes in addition to incision and multiple puncture of the vesicles. Gonococci were present in fluid from vesicles in three cases and streptococci in one case. The average stay of the patient in the hospital was three weeks after operation, at which time the wounds had stopped discharging and were healed.

Case IV (5845) is cured but now, six months after operation, the patient complains of loss of sexual power in strong contrast to his normal condition.

Case V (13040), in which streptococci were present had a tedious convalescence and required two months of treatment before a complicating cystitis was cleared up. It is now eighteen months after operation and the patient has remained well.

Case VI (8353) developed a perineorectal fistula which required subsequent incision. Apart from this complication the patient's convalescence was uneventful. It is over two years since operation and there is no evidence of any chronic vesicle infection.

Case VII (01747). Operation produced a rapid subsidence of symptoms. Date of operation, December 16, 1913. Four weeks later the patient was free from symptoms with wound healed. He remained cured until January 2d, when he had another attack of acute specific urethritis five days after exposure. This attack ran a mild course, was cured at the end of two months, and did not involve the vesicles.

CASE VIII (0923). 32. M. Chief complaint: Recurrent attacks of left epididymitis and periods of partial impotence. Previous history. Acute specific urethritis ten years ago. Long convalescence and complicated by left epididymitis. Morning discharge present for three years. Married six years. Three healthy children and wife showed no signs of infection. Attacks of epididymitis followed exertion from golf, horseback riding, and sexual excess. Following periods of sexual excess he had periods of impotence lasting two or three months. Examination: Swollen prostate and vesicles. Fluid expressed by massage contained pus and staphylococci. Complement fixation test, negative.

Operation, November, 1913. Operative findings: Swollen succulent vesicles, large amount of fluid evacuated. Extrinsic changes not marked. Culture negative for gonococci. Postoperative note, November, 1914. No attack of epididymitis since operation. Per rectum, prostate and vesicles normal. After massage of prostate and vesicles, urine contained no debris. For six months after operation, the power of erection was absent. Since then he had frequent, normal coitus. December 22, 1914, the preceding record was read to the patient for his comment and he requested that the following note be added to the history: "Before operation, for many years, I have been subject to severe headaches, coming on after any excess of eating, drinking, smoking or over work. I was always tired and weighed 136 pounds, my height being 5 feet 10½ inches. Within one month following operation the change in my general health was remarkable. My weight increased so that at the end of two months I had gained twenty pounds. During the past year I have had no attacks of headache, irrespective of what I do in the way of drinking, eating, smoking, etc. The local changes have been stated cor-

rectly but I feel that the change in my general health should be emphasized as well."

CASE IX (2454). 26. S. Chief complaint: Recurrent epididymitis and persistent urethral discharge. Neisserian infection six months ago, complicated by acute prostatitis and seminal vesiculitis. Patient had been subjected to much sexual excitement and for the last month had been indulging in coitus. Attacks of right epididymitis followed acts of coitus. Complement fixation test, negative. By massage to enlarged pulpy vesicles and prostate a large quantity of pus laden fluid was expressed, examination of which showed extracellular diplococci.

Operation, December, 1913. Findings: Thin walled distended vesicles. Small amount of perivesiculitis. Large amount of fluid evacuated from vesicles—examination of which showed pus with extracellular diplococci. Right epididymotomy performed. Postoperative note. Uneventful convalescence. Drainage of the vesicles and incision of the epididymis effected a cure of all his symptoms. Within six weeks of operation this patient had a postoperative impotence, still persisting one year after operation.

CASE X (01490). 26. S. Chief complaint: Persistent urethral discharge. Gonorrheal infection one year previously. On constant treatment ever since. Examination showed swollen tender vesicles and prostate from which large quantities of debris could be massaged. Urethroscope revealed pus exuding from ejaculatory ducts. Complement fixation test: negative.

Operation, December, 1913. Findings: Vesicles distended with thick jellylike fluid. Perivesiculitis not marked. Bacteriological examination of material from vesicles. No organisms seen on smear, pus and epithelial cells and mucus. Cultural examination: No growth obtained after three days on ascitic agar. Postoperative note: Uneventful convalescence. Symptoms disappeared with wound healing. He remained well for six months after operation, when he contracted a second acute gonorrhea. This attack ran a mild course and he was free from discharge within two months. December, 1914. Reported for examination Free from symptoms. No discharge. Urine contained a few fine flakes in first portion passed. Per rectum, prostate and vesicles soft and normal. Coitus perfect.

CASE XI (05154). 31. M. Chief complaint: frequency of urination and urethral discharge of three years' duration. Neisserian infection three years ago. Recurrent attacks of bilateral epididymitis. Under constant treatment by injections and vaccines. Gonococci present in urethral smears. Examination: Swollen prostate and vesicles. Gonococci in vesicle strippings.

Operation, December, 1913. Drainage of the vesicles combined with epididymotomy. Vesicles distended with purulent secretion, smear from which showed gonococci. Convalescence was complicated with three sharp hemorrhages from perineal wound: first on the ninth day, second on the sixteenth day, and third on the twenty-second day. Epididymitis developed on the sixteenth day. Patient was not up until the fourth week. Six weeks after operation, the discharge from urethra ceased for ten days and then recurred as a thin morning drop, smears of which remained negative as to the presence of gonococci. Culture of the discharge regularly showed staphylococci. The frequency of urination cleared up at the end of three months. Complement fixation test, June, 1914, negative. December, 1914. Patient a year after operation had gained weight, had a normal frequency of urination, and satisfactory sexual capacity. He still had a mucoid urethral discharge. As far as can be accurately determined, by smear, culture and complement fixation tests, he is no longer the host of gonococci. Rectal examination of prostate and vesicles showed absence of any induration and the urine passed after massage contained only a few fine flakes.

CASE XI (51914). 30. S. Chief complaint: Persistent urethral discharge. Previous history: Four years ago acute specific urethritis. Under treatment a year or so, but discharged persisted. A year ago, following operation for appendicitis, the discharge increased and examination showed presence of gonococci. Treatment ever since resulted in reducing discharge to morning drop only. Examination showed full tender vesicles; fluid expressed by massage contained extracellular diplococci.

Operation, September, 1914. Findings: Distended pus

laden vesicles, walls thickened. Perivesiculitis not marked. Postoperative note: Four weeks after operation discharge had ceased. Three months after operation, no recurrence of discharge. Rectal examination showed prostate and vesicles soft and not tender. Urine after massage was free from pus. The patient had normal coitus.

CASE XII (3528). 37. S. Chief complaint: Rectal pain. Increased urinary frequency. Pus discharge from urethra at end of defecation. Venereal history. Gonorrhea seventeen years and five years ago. Examination: Endoscopic; chronic inflammatory changes in deep urethra. Pus seen exuding from ejaculatory ducts.

Operation, March 5, 1914. Findings: Vesicles, walls thickened. Lumen contracted and stenosed. Small amount of fluid evacuated. Postoperative record. Discharged, improved, March 21st.

CASE XIII (00499). 35. S. Chief complaint: Recurrent epididymitis. Original gonorrheal infection two years ago. Attacks followed slight exciting causes. Associated conditions were chronic urethritis and seminal vesiculitis.

Operation, October, 1913. Findings: Fibrous vesicles, diverticula contained bloody fluid; gonococci not found. Perivesiculitis marked. Postoperative note. Following

Postoperative notes. May, still a little urethral discharge. Erections and nocturnal emissions since operation. June, no discharge, urine phosphatic. December, no discharge, pus still present in urine.

Naval Hospital Report. 1. Ship's cook. Admitted with diagnosis of gonococcus infection of urethra. Had had gonorrhea for about one year. Upon admission had an urethral discharge containing the gonococcus. Prostate enlarged, indurated, and right vesicles palpable.

Operation, June 10, 1914. Vesiculotomy. (Patient is still in hospital and his condition is not improved.)

Naval Hospital Report. 2. Fireman. Admitted with gonococcus infection of the urethra. Wassermann four plus. Gave history of having had gonorrhea for six months. Had an extremely large indurated prostate, right vesicle palpable. Operation, April 14, 1914, vesiculotomy. About three weeks after operation, patient had a prostatic abscess which was drained. Patient continued to have an urethral discharge, and prostatic smear showed the presence of the gonococcus. Discharged to duty August 26, 1914. Had an occasional morning drop, and gonococci could be demonstrated in the prostatic smear.

CASE XVI (00949). 33. M. Physician. Chief com-

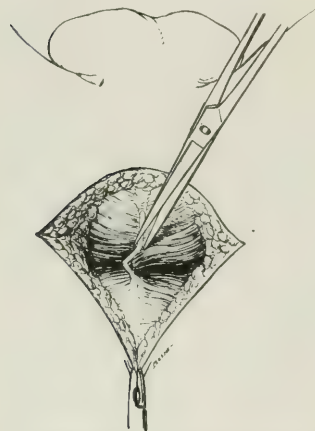


FIG. 5.—Proper line of division of urethrothal attachment close to the urethra.

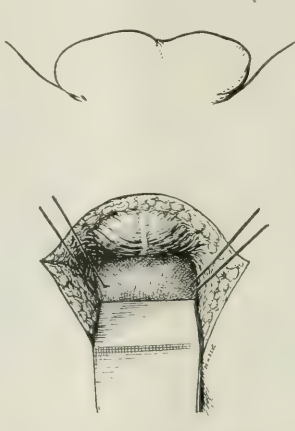


FIG. 6.—Traction sutures applied, at junction of base of prostate and bladder; posterior retractor in place.

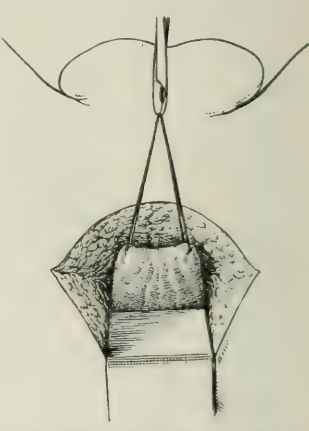


FIG. 7.—Traction upon sutures exposing vesicles covered by fascia of Desnonvillier.

operation patient was under treatment for three months for existing prostatitis and urethritis. No further attacks of epididymitis. A year after operation patient reported no further attacks of epididymitis. This case was improved by the operation, but it is probable that less radical treatment would have accomplished as much.

CASE XIV (01094). 27. S. Chief complaint: Chronic morning urethral discharge of ten months' duration. This followed subsidence of acute Neisserian infection of one year ago. Examination showed evidence of chronic urethritis, prostatitis, and seminal vesiculitis. Examination of fluid expressed from vesicles and prostate showed gonococci to be present.

Operation, November, 1913. Findings: Distended vesicles; walls thin. Perivesiculitis moderate. Postoperative note. The discharge continued for three months following operation. It slowly subsided. A year after operation there was occasionally a morning moisture. Examination of vesicles negative. The symptoms were only moderately improved by operation.

CASE XV (04785). 38. S. Chief complaint: Intermittent urethral discharge of six years' duration. Pyuria always since last infection. Two attacks of urethritis, twelve and six years ago. Examination: Thin urethral discharge not containing gonococci. Complement fixation test negative. Both vesicles enlarged and tender and pus present in copious vesicle strippings.

Operation, April, 1914. Findings: Vesicles distended, walls thickened and marked induration around them. Vesicle contents showed pus, mucus, and staphylococci.

plaint: Chronic urethritis and seminal vesiculitis of two years' duration. Symptoms, urethral discharge and perineal ache. Had been under constant treatment. Examination: Urethral discharge, but no gonococci found. Distended vesicles. Large amount of fluid expressed by massage; pus and staphylococci. (Note—Patient was on his wedding trip and decided upon operation as a possible means to clear up the urethral discharge. Was told that no guarantee could be given.)

Operation, November, 1913. Findings: Distended vesicles. Right vesicle contained a number of small calculi. Extrinsic changes not marked. Postoperative note. Convalescence complicated by epididymitis. Last heard from six weeks after operation at which time perineal ache had disappeared and urethral discharge had been reduced to a mucoid morning drop. In the case summary was listed as "not heard from."

CASE XVII (8163). 24. S. Physician. Chief complaint: Impotence. Increased urinary frequency, perineal pain. Present trouble dated back three years, when patient said he had perineal pain following orgasm, which persisted several days and was accompanied by painful urination. After this was unable to have erection for one year. At times attacks of severe perineal pain and rectal fullness with dysuria. Four years ago acute specific urethritis. Examination: No urethral discharge. Prostate hard and very tender. Both vesicles swollen and tender. After massage of prostate and vesicles considerable pus was present in voided urine. Endoscopy: Chronic changes around veru.

Operative findings: Vesicles distended. Walls thickened. Marked perivesiculitis. Culture of fluid from vesicles: Staphylococci. Postoperative report: Urinary frequency normal. Perineal pain disappeared with normal healing. November, 1914, all symptoms disappeared. Sexual capacity regained.

CASES XVIII (14121), XIX (16924), XX (8117), XXI (51914). This group, presenting symptoms of more or less constant perineal ache, associated in two instances with recurrent urethral discharge, were found at operation to be calculi within the seminal vesicles. In each case there was a history of Neisserian infection of years previous and they had undergone long continued treatment of various kinds. In but one was the diagnosis of calculus made prior to operation. They were all looked upon as belonging to the sclerosed type of vesicle involvement, with symptoms arising from nerve pressure or lymphatic block. The case diagnosed correctly gave a history of typical *colique spermatique*. The calculi in all these cases were found to be composed of phosphate and carbonate of lime. Along with more radiographic study of the seminal vesicles I am inclined to believe that this condition will be found to be of not infrequent occurrence, given a chronically in-

CASE XXIII (4987). 25. S. Chief symptoms: Rectal fullness and pain. Impotence from failing erection. Neurasthenia of advanced type. Sexual abuse for years and one Neisserian infection of a year previous. Had spent ten months under various nerve specialists for treatment of the impotence and neurasthenia. He had lost eighty pounds in weight and threatened suicide. Examination: Chronic urethritis and bulging overdilated vesicles from which pus could be expressed.

Operation, May, 1914. Findings: Thin walled distended vesicles. Extrinsic changes not marked. Large amount of thin purulent fluid evacuated. Culture showed staphylococci. Postoperative record: Rectal pain disappeared following wound healing. His neurasthenia disappeared with the pain. Note: December, 1914. He regained his normal weight. There had been no recurrence of the pain and the patient said he was cured and was contemplating marriage. This case, like the preceding one, was a remarkable exhibition of cure of a patient who was considered merely a sexual neurosthentic.

CASE XXIV (9451). 26. S. Chief complaint: Frequent urination and pain at the end of urination. Morning drop. Previous history: Contracted acute specific ure-

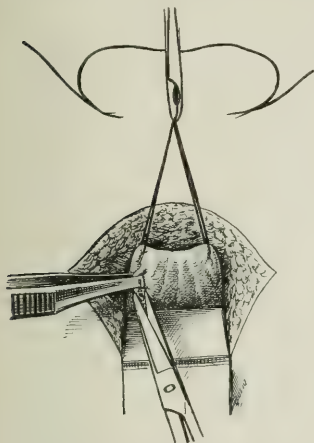


FIG. 8.—Method of division of Desnon-villier fascia so as not to enter the vesicles.

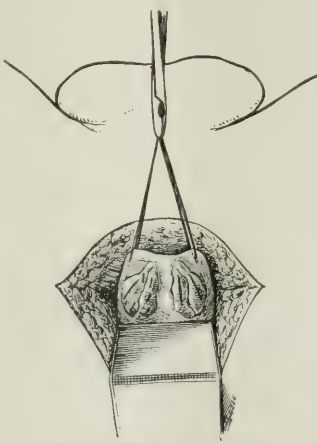


FIG. 9.—Wide excision of covering of fascia exposes vesicles beneath lines of incisions and punctures into vesicles.

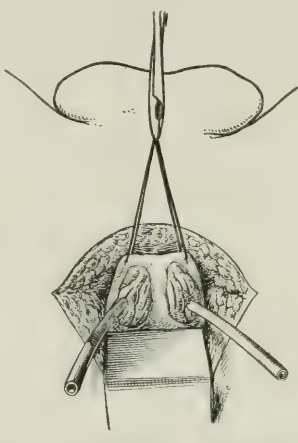


FIG. 10.—Methods of anchoring the drainage tubes.

flamed vesicle with a partial occlusion of the outlet and ideal conditions exist for calculous formation. Further collated operative data will prove or disprove the contention.

Operation in Cases XVIII, XIX, and XX resulted in absolute relief of symptoms. In Case XXI, the perineal ache disappeared, but the urethral discharge continued for months after operation.

CASE XXII (11609). 42. S. Chief complaint: Perineal pain and testicular neuralgia. Duration, eight years. Symptoms developed after Neisserian infection. The pain was so severe that he had been incapacitated from work. Anteprecipitate treatment: Over a period of six years, during which time he consulted many physicians, he was subjected to the following treatment: Prostatic massage, deep instillations, endoscopic applications. 1. Ligation of left varicocele. 2. Excision of varicocele scar and adherent vas. 3. Removal of left testicle. 4. Perineal section and bladder drainage. 5. Belfield's vasostomy before left castration. Examination showed evidence of chronic urethritis and seminal vesiculitis. Both vesicles palpable by rectal examination.

Operation, (?) 1913. Findings: Vesicles bound down by firm adhesions everywhere. Dissected out with difficulty. Both sclerosed and lumens contracted. Multiple incision and puncture. Postoperative report: Following convalescence from operation, all his symptoms disappeared. He was absolutely free from any symptom for eighteen months and considered himself well. This, and the next case received the most remarkable benefit of any of this series.

thritus seven years ago. After six months was free from symptoms except as above until eighteen months ago when an acute exacerbation took place, characterized by profuse urethral discharge, prostatitis, and cystitis, pus being massaged from prostate. There were also bloody nocturnal emissions. Patient now urinated every two hours with burning. He had been advised to have a modified Bottini operation performed on his vesical neck to cure the urinary frequency. Cystoscopic examination showed a normal bladder with no obstructing bar. Deep urethra showed chronic inflammatory changes in verumontanum, prostate and ejaculatory ducts with pus exuding from them. Rectal examination: Induration present marking outline of prostate and vesicles.

Operation, September, 1914. Findings: Vesicles surrounded with dense inflammatory exudate. Bloody fluid exuded from vesicles upon incision, culture of which did not show gonococci. Staphylococci were present. Postoperative note: Normal convalescence. Urinary symptoms disappeared as wound healed. Three months after operation, all symptoms had disappeared. Remarks—The basal inflammation between vesicles and bladder was undoubtedly the cause of urinary disturbance. Rectal examination, three months after operation, showed normal prostatic outline with no surrounding induration.

CASE XXV (5630). 27. S. Chief complaint: Perineal discomfort, backache, and neurasthenia. Acute specific urethritis four years ago. Never free from symptoms since. For three years under my care for chronic urethritis, prostatitis, and seminal vesiculitis. (Just as long

as this patient was regularly treated by prostatic massage and urethral applications he would remain fairly comfortable. Omit treatment for a short time and symptoms recur. Operation suggested as a possible means of permanent relief and accepted.

Operation, May, 1914. Findings: Large distended vesicles with only moderated amount of perivesiculitis. Cultural report: Staphylococci. Postoperative note: Uneventful convalescence. Since operation patient gained twenty pounds, the neurasthenia and other symptoms disappeared, and he asserted he was cured. Examination of prostate, vesicles, and urethra negative, seven months after operation.

CASE XXVI (9902). 46. M. Physician. Chief symptoms: Perineal pain. Pain during ejaculation and defecation. Duration, over ten years. Symptoms developed after Neisserian infection. Sexual capacity. For six years partial impotence, precipitate ejaculation, and failing erection. Frequent nocturnal emissions. Antepreoperative treatment: Under many specialists, massage of prostate, deep instillations, endoscopic applications, etc. Examination: Deep urethra, chronic changes in verumontanum, prostatic ducts, and mucous membrane. Per rectum, prostate prominent, tissue around vesicles thickened and outline not distinguishable. Remarks: Operation offered as a possible aid and accepted.

Operation, November 12, 1914. Findings: Perivesicular thickening marked, vesicle walls thickened, and fibrous and

Examination: Both vesicles distended—prostate swollen and tender and quantities of debris expressed by massage. No gonococci present. Massage fluid showed pus and staphylococci.

Operative findings, January, 1914: Vesicles distended. Fluid evacuated contained pus and staphylococci. Marked perivesicular thickening. Postoperative record: Uneventful convalescence. Normal frequency of urination but still burning at end of act. Prostate soft and vesicles not palpable. Impotence still obtained.

CASE XXIX (753). 20. S. Chief complaint: Frequent painful urination of two years' duration. The foregoing followed an attack of acute specific urethritis, contracted two and one half years ago. Acute symptoms subsided after two months' treatment. Renal and vesical elimination as causative factors. Urethroscopy and rectal palpation showed evidence of chronic seminal vesiculitis. No evidence of tuberculosis.

Operative findings: Fibrous stenosed vesicles with extensive exudate between vesicles and bladder base. Postoperative note: Uneventful convalescence. Six weeks after operation his condition remained unchanged. A year after operation found his condition unimproved.

CASE XXX (11776). 30. S. Complaint, April 3, 1913, infection in December. Acute specific urethritis. Virulent in character from the first. Posterior urethritis. Double epididymitis. Sent to hospital twice—January and February for threatened prostatic (?) abscess. Both times relieved by local measures. During March. Symptoms: Profuse urethral discharge—dysuria and frequent urination. Treatment: Urethral injections and irrigations—antigonococcal serum and vaccine treatment. March. Before coming under my care, multiple arthritis had developed. Knees, ankles, wrists, vertebrae and maxillary articulation involved. He was carried to the hospital on a stretcher on April 3, 1913. P. E. Thin urethral discharge: gonococci. Prostate swollen and tender. Vesicles palpable and exquisitely tender. Patient had a septic temperature. Refused operation and steadily became worse in spite of local and anti-rheumatic treatment. Daily excursion of temperature to 101° F. Pulse 92-104. Blood culture negative.

On April 10th, consented to operation, chiefly because his jaws had become so rigid that it was with difficulty that even fluids could be introduced into the mouth.

Operation: Scquier technic. Vesicles distended with thin whitish fluid. Multiple incision into vas and vesicles. Culture of fluid from vesicles, negative. Postoperative note from hospital record: "Twelve hours after operation jaws had relaxed, arm and knees free from pain. Ten hours later the swelling had disappeared from feet and ankles. Three days after operation the patient was free from pain except in region of wound." The patient made a tedious but uneventful convalescence. A sharp rise of temperature occurred on the sixteenth day after operation due to drainage becoming blocked. He left the hospital, cured, on June 5th. Note: December, 1914. Reported well with no recurrence of any symptoms; had gained thirty pounds.

CASE XXXI (9748). 42. M. Chief complaint: Pain and swelling in right knee joint. Present history: Acute specific urethritis of three months' duration. Treatment: Internal medication for one week, then injections for three weeks. Discharge ceased. At the end of the sixth week, the right knee joint became acutely inflamed with swelling and exquisite tenderness. Confined to bed. Knee immobilized and serum and vaccine injections given. Acuteness of symptoms subsided, but the knee remained swollen and painful with impaired motion. December 17, 1912, on admission to the hospital he could not bear weight on the leg. The knee measured four inches more in circumference than its fellow and fluctuation in the joint was present. Examination: Evidence of urethritis and seminal vesiculitis existed.

Operation, December 18, 1912. Findings: Thin walled vesicles, distended with pus laden fluid, but little perivesicular thickening. Postoperative record: All pain disappeared within the first day. Swelling slowly subsided. Discharged on January 4, 1913, absolutely cured and remained so. Last heard from over a year from date of operation.

CASE XXXII (8682). 40. S. Chief complaint: pain and swelling in left heel and ankle. Unable to walk without cane. Family history: Negative. No evidence of lead poisoning. Personal history: medical. Negative. Chronic



FIG. 11. Closure of wound, showing position of tubes and gauze drains.

lumen stenosed. Multiple incision of right and partial excision of left vesicle. Lobes of prostate incised. Pathological report: Microscopical examination of excised vesicle. Section showed fibrous tissue of inflammatory origin and masses of round cells, also spaces lined with epithelium, in some places single layered, in others, several layers. Diagnosis: Chronic inflammation, specific nature not determined. Postoperative report, December 9th. Perineal pain disappeared, also pain during defecation. Patient felt greatly improved.

CASE XXVII (9480). 49. S. Chief complaint: Slight morning discharge and perineal ache. Recurrent attacks of left epididymitis and frequent urination. The foregoing followed acute specific urethritis twenty years ago. He had been subjected to the following operative treatment since the original infection. 1. Internal urethrotomy. 2. Division of bladder neck and Belfield's operation for drainage of the vas. Cystoscopy showed trigone elevated and edematous in the region of the vesicles. Chronic inflammation of deep urethra with pus exuding from ejaculatory ducts. Advised seminal vesiculotomy with no guarantee of cure.

Operation, October, 1914. Findings: Distended vesicles with marked perivesiculitis. Cultural examination of vesicle contents: No growth in seventy-two hours. Postoperative note: Uneventful convalescence. Two months after operation, no return of perineal ache, urethral discharge disappeared. Left testicle at times still painful, but no recurrence of epididymitis. Patient continued under treatment.

CASE XXVIII (10180). 41. S. Chief complaint: Urinary frequency and pain at end of urination. Duration, five years following an attack of acute specific urethritis. Had been on treatment for chronic prostatitis and seminal vesiculitis for three years. At present practically impotent.

alcoholic. Surgical operation seven years ago. Inguinal adenitis. Venereal history: Said he had lues three times. Gonorrhea, twenty, fifteen, and twelve years ago. In July, 1912, swelling heel and ankle began to pain him—worse at night, swelling and tenderness followed. He entered a hospital and was confined there three months, during which period his chronic urethritis was treated by local measures, serum, and vaccines. His ankle was baked and a steel arch support worn. The joint condition did not improve even with anti-rheumatic treatment. Examination: Chronic seminal vesiculitis. Wassermann, negative. The patient was told that drainage of the vesicles might give relief and he accepted operation.

Operation: This was performed on October 20, 1912. Pain in ankle disappeared within twenty-four hours after operation and by the time he was allowed up (ten days) the affected joint had become normal in size. After leaving the hospital, he obtained a position as type setter, which required being on his feet continually for hours. From the day of leaving the hospital, November 6, 1912, to the present, December, 1914, he had been regularly at work without pain or discomfort in the joint. He had gained in weight and said he was well and had married.

Naval Hospital Report. 4. Plumber and fitter. Admitted with diagnosis of gonococcus infection of joints, had had gonorrhea for past year. Left knee joint affected, ankle joint also affected when trouble first started. Has a large indurated prostate. Prostatic smear showed the presence of gonococcus. Right vesicles palpable.

Operation, May 18, 1914. Vesiculotomy. Joint symptoms cleared up in about three weeks, and patient was discharged to duty well on August 21, 1914.

Naval Hospital Report. 5. (F. 2.) Admitted to this hospital with a diagnosis of gonococcus infection of joints. Condition had existed for several weeks. Has had recurrent attacks for past year. Ankle and right knee being affected at different times. Had chronic gonorrhea, prostate much enlarged, indurated, both vesicles palpable.

Operation, April 9, 1914. Vesiculotomy. Two weeks after operation, joints had practically cleared up. Patient was discharged to duty, June 19, 1914. No urethral discharge. Prostatic smear did not show the presence of gonococcus.

Naval Hospital Report. 7. Blacksmith. Patient admitted with diagnosis of gonococcus infection of joints. Left knee and left ankle affected. Gave history of having had gonorrhea for past two years. Cystoscope showed dilated prostatic ducts amounting to a diverticulitis, granular condition of mucous membrane in posterior urethra. Patient had had enlarged boggy prostate with both vesicles palpable.

Operation, April 14, 1914. Vesiculotomy. Joint symptoms cleared up in two weeks after operation. Patient discharged to duty, May 19, 1914. At time of discharge had no urethral discharge and prostatic smears did not show the presence of gonococcus.

CASE XXXIII (9643). 29. S. Chief complaint: Acute arthritis of second phalangeal articulation of left middle finger. Associated symptoms, urethral discharge containing gonococci. Duration, one week. History of recurrent attacks of urethritis without reexposure to infection over a period of two years.

Operative findings: October, 1914. Vesicles distended with thin purulent fluid. Perivesiculitis not marked. Cultural findings: Gram negative cocci. Postoperative record: Immediate subsidence of arthritis following operation. Increased urethral discharge which ran a subacute course was treated with hand injections of argyrol and subsided three weeks after operation. Note, December, 1914: Too recent a case to allow of final report. Undoubtedly not a fresh infection, as the discharge from the urethra and the joint symptoms developed simultaneously without fresh exposure. The attack followed a long horseback ride upon a spirited animal. The pounding on the saddle probably lightening up the urethral discharge and trauma to the hand holding the reins, were responsible for the localization of the joint manifestation.

CASE XXXIV (7290). 25. S. Chief complaint: Pain in nearly every joint in body. Past history: Measles and typhoid during childhood. Six years ago had gonorrhea. Discharge from urethra has never cleared completely. Present illness began four months ago with pain in back of neck. Then the arch of left foot became tender

and painful. Progressive involvement of knees, hips, shoulders, elbows, and wrists. Had been under local urethral treatment and vaccine injections for past two months. Patient unable to walk or sit up; brought to hospital on a stretcher. His condition steadily became worse irrespective of treatment. Examination: Urethral discharge containing gonococci. Per rectum, both vesicles greatly distended.

Operation, July 30, 1914. Findings: Vesicles distended with thin purulent fluid. Extrinsic change not marked. Cultural examination: Plates negative. Note, August 1st, from hospital chart: "Patient passed a comfortable day is free of pain in joints." August 9th. "Out of bed and walked on roof." August 14th. Discharged cured. December, 1914. Has been back at work, gained weight, and had had no recurrence of any joint symptoms.

CASE XXXV (7188). 26. S. Chief complaint: Multiple gonorrheal arthritis. Joints involved, right knee, right ankle, right hip, and lumbar spine. Gonorrheal infection one month old when joint symptoms developed. Examination: Urethral discharge, thin mucoid cells and gonococci found. Vesicles tender and palpable.

Operation, July 25, 1914. Findings: Vesicles distended with thin purulent fluid. Cultural examination: Only two colonies: 1. Gram negative bacillus. 2. Gram positive staphylococcus. Postoperative record: Normal convalescence. Pains disappeared during the first week following operation. Examination, August 31st: No joint symptoms. Has gained weight. No urethral discharge. Urine clear. December, 1914, no recurrence of symptoms.

CASE XXXVI (6746). 23. S. Articular symptoms: Right ankle swollen and tender. Left wrist painful on motion. Duration, two weeks. Venereal history: Ten weeks ago developed acute specific urethritis. Treatment: Argyrol injection and vaccine therapy.

Operation, August, 1914. Findings: Prostate swollen and vesicles distended. Considerable surrounding exudate. Multiple incision of vesicles. Lateral prostatic lobes incised. Postoperative note: Articular symptoms cleared up promptly and patient was discharged cured in two weeks. December, 1914, he at once went back to work as chauffeur and had no further joint symptoms.

CASE XXXVII (13306). 24. S. Chief symptoms: Stiffness and swelling of left knee and right elbow joints. Duration, two months. Neisserian infection six months ago. Family history, negative. Personal history—measles during childhood. Surgical history: Operation for adenoid and tonsil extirpation some years previous. Antepreoperative treatment, had been injections, irrigations, and vaccines. Examination: Urethral discharge containing gonococci. Per rectum, vesicles palpable.

Operation, June 14, 1913. Findings: Vesicles distended with fluid, having the appearance of skimmed milk. Walls of vesicles not thickened. Considerable perivesiculitis present. Postoperative report: Pain disappeared the day following operation. Swelling rapidly subsided. Discharged July 2, 1913, cured and remained so. Remarks: Urethral discharge had subsided without local treatment. Patient remained well since leaving hospital. Last heard from, a year after operation.

CASE XXXVIII (02654). 21. S. Chief symptoms: Discharge from urethra, containing gonococci. Acute pain and swelling in right knee joint. Left knee the same but less involved. Present illness began six weeks ago, when he contracted acute specific urethritis. Posterior urethritis developed at end of two weeks, and a few days later left epididymitis. Five days later both knee joints became swollen, most marked in right one. Examination, per rectum, swollen prostate and vesicles. Antepreoperative treatment: Rest in bed, vaccine therapy, urethral medication. Remarks: Foregoing treatment did not affect severity of joint symptoms.

Operation, January 29, 1914. Findings: Vesicles distended, walls thin, moderate amount of perivesiculitis. Prostate swollen. Postoperative history: Pain disappeared the day following operation and the joints rapidly regained normal size. Patient left hospital three weeks after operation with joints normal. The urethral discharge cleared up upon argyrol injections. For two months after operation the patient said that there was loss of the power of erection. This proved to be but transient, and at the end of four months sexual vigor was wholly regained. Eleven months after operation patient had had no recur-

rence of any symptoms whatsoever and examination showed cured condition. Complement fixation test, negative.

CASE XXXIX (A-1913). 40. S. Chief complaint: Rheumatism in feet and ankles. Duration, eighteen months. Neisserian infection two years ago. Patient could not walk, except with crutches. Examination by urethroscope, rectal touch and urinary examination showed presence of chronic seminal vesiculitis. Had been under local urethral treatment, vaccine therapy, and orthopedic treatment. Condition progressive.

Operation, January, 1914. Findings: Vesicles imbedded in a dense mass of indurated tissue, walls thickened, contents scanty and coffee colored. Cultural examination: Streptococci. Postoperative note: Pain disappeared in forty-eight hours after operation. Swelling slowly subsided. At the end of four weeks, the patient walked out of the hospital without the aid of crutches—cured and remained so.

Naval Hospital Report. 3. Apprentice. Admitted with diagnosis of gonococcus infection of joints. Has had gonorrhea for past two years. Had a urethral discharge containing the gonococcus. Prostate enlarged and indurated, both vesicles palpable. Right knee joint had been acutely inflamed for past four weeks.

Operation, May 18, 1914. Vesiculotomy. Joint symptoms subsided within a week after operation. Patient invalided from the service August 21, 1914. At time of discharge had some limitation of motion in knee joint. Patient had an occasional morning drop, but prostatic smears showed the presence of the gonococcus. Patient had recurrent attacks of epididymitis up to the time of his discharge from the service.

CASE XL (5711). 54. S. Physician. Chief complaint: Progressive multiple arthritis. Duration, seven years. Gonorrhea thirty-two years ago, complicated by a stricture of urethra. Present condition, characteristic picture of deforming arthritis of hands, wrists, elbows, ankles, and knees. He had acute exacerbation of pain and swelling in the various joints, between which he enjoyed only comparative comfort. The left knee was at present greatly swollen and fluctuation was present. He had become incapacitated for work. The various possible infective areas in his body had been slowly eliminated as causative probabilities by various treatments and diagnostic means. The cure of an existing chronic prostatitis and vesiculitis offered a possible chance to ameliorate the condition. With this in view he requested operation.

Operation, June 20, 1914. Findings: Chronic inflammation of the prostate; vesicles sclerosed and their exposure difficult on account of existing perivesiculitis. Incision of vesicles and prostate. Postoperative note: Convalescence was complicated by development of a urethral fistula (due to incision into prostatic urethra). Patient remained in the hospital for two months, during which time he stated he was better from the pains and aches in general. There was no improvement in the swollen left knee joint which was subsequently immobilized in a plastic splint. He went home and after a period of two months returned for further observation. There had been no improvement in the knee joint, but he still said that his other joints were greatly benefited. A splint allowing of movement was applied to the knee, and from this he has derived much comfort as he was now able to work without pain. The patient felt hopeful about the operative result. The only improvement which he had had, in my judgment, was more due to good hospital care and attention by the orthopedic surgeons than by the result of operation.

CASE XLI (W1914). Chief complaint: Pain in ankles, hips, and knee, duration, one year. Symptoms developed six months after acute specific infection. Onset gradual, swelling, pain and tenderness in heels, ankles, knees, and hips. Treatment included salicylates, massage, baking, and vaccine. Examination: No urethral discharge. Per rectum, both vesicles swollen and tender.

Operative findings: Distended thin walled vesicles; thin bloody purulent fluid exuded when incised. Smear and culture gave no gonococci but Gram positive cocci. Postoperative: Pain and swelling disappeared almost at once (three or four days) after operation. Only a month has elapsed since operation, and although this patient has no symptoms of rheumatism, his case is listed under the im-

proved cases because of the short time which has elapsed since operation.

CASE XLII (C1914). 43. M. Chief complaint: Acute exacerbations of pain and swelling in various articulations. Previous history: Twenty-four years ago acute specific urethritis with joint involvement. This had been progressive ever since. Twelve years ago, the left hip became practically ankylosed. The acute attacks now involved wrists, ankles, shoulders, etc. Repeated examinations of vesicle strippings showed the presence of colon bacillus, staphylococci, and streptococci.

Operative findings: Distended vesicles surrounded by dense inflammatory exudate. Microscopic examination of fluid from vesicles show Gram positive cocci and pus cells. Postoperative note: Two months after operation, no recurrence of acute attacks, had gained weight and said hip joints were improved. (?)

IDENTIFICATION TABLE OF CASE HISTORIES AND RESULTS.

PUS GROUP.

Cured—Case Nos. 12056, N. H. R. 6, 4090, 01656, 5845, 13194, 8353, 01747, 0023, 2454, 01490, 05154, S. 1914.
Improved—Case Nos. 3283, 00009, 01001, 04785, 51914.
Unimproved—Case Nos. N. H. R. 1, N. H. R. 2.
Not heard from—Case No. 00049.
Summary—Total 21, cured 13, improved 5, unchanged 2, unknown 1.

PAIN GROUP.

Cured—Case Nos. 14121, 8163, 11609, 4987, 10924, 8117, 9151, 3030.
Improved—Case Nos. 0902, 9480, 10180.
Unimproved—Case No. 753.
Summary—Total 12, cured 8, improved 3, Unimproved 1.

RHEUMATISM GROUP.

Cured—Case Nos. 11776, 9748, 8682, N.H.R. 4, N.H.R. 5, N.H.R. 7, 9643, 7290, 7188, 6746, 13306, 02654, A. 1913.
Improved—Case Nos. N. H. R. 3, 5711, W. 1914, C. 1914.
Summary—Total 17, cured 13, improved 4.

RESULTS.

TOTAL NUMBER OF CASES OPERATED, FIFTY.

1. Pus group	42 per cent.
2. Pain group	24 per cent.
3. Rheumatic group	31 per cent.
Of the total number of cases operated:	
68 per cent. were cured;	
24 per cent. were improved;	
8 per cent. were unimproved.	

PERCENTAGE OF GROUP RESULTS.

1. Pus group—	
Cured	61.9 per cent.
Improved	23.8 per cent.
Unimproved	14.3 per cent.
2. Pain group—	
Cured	66.6 per cent.
Improved	25 per cent.
Unimproved	8.4 per cent.
3. Rheumatic group	
Cured	70.4 per cent.
Improved	23.6 per cent.

CONCLUSIONS.

Operative drainage of the vesicles for chronic focal infection has produced in this series a cure in sixty-eight per cent. of all cases operated in, improvement in twenty-four per cent., and no improvement in eight per cent. The largest percentage of cure has been among those cases in which arthritic symptoms predominated: Cured, 76.4 per cent.; improved, 23.6 per cent.

My experience with drainage of the seminal vesicles in patients suffering from arthropathies seems to indicate that the amount of relief to be expected in any given case will largely depend upon the length of time elapsed between the acute urethral infection, the appearance of the joint lesion, and the operation for drainage. After ankylosis from fibrous or bony changes has taken place, operation upon the vesicles will offer but little except toward arresting further joint destruction.

Next in order of operative relief is the pain group, where cure resulted in 66.6 per cent. of cases, improvement in twenty-five per cent., and no improvement in 8.4 per cent.

The least satisfactory have been the pus group,

where cure resulted in 61.9 per cent.; improved in 23.8 per cent., and no improvement in 14.3 per cent. The reason this group has been the least productive of favorable result is obvious. In most instances the infection in the vesicles is only a part of a pan-infection involving prostate, urethra, and bladder neck. This group of cases may be found to require excision of the vesicles and prostate if cure is to be expected in every case.

Twenty-five per cent. of the pain group were complicated by calculi of the vesicle.

Where neurasthenic symptoms were associated with any of the symptom groups, there has been a complete amelioration of these symptoms.

Impotence.—Approximately ten per cent. of the patients suffered from a postoperative impotence. This was transient in all but one case, where it had continued up to the present and in which there was a preoperative impotence. The other cases in from two to six months regained their sexual capacity in every instance. It must not be lost sight of that the majority of patients suffering from chronic seminal vesiculitis had already manifested an impairment of sexual function irrespective of operation.

The important corollary is that a surgeon should definitely ascertain the exact status of a patient's sexual function before operation is decided upon, in order to guard against having the operation considered as the cause of an already existing impotence.

To conclude this study, I desire to record my present belief in regard to the curative value of drainage of the vesicles. The operation offers a reasonable expectation of benefit in well selected cases presenting symptoms comparable to the foregoing classifications. With the possible exception of early gonorrheal joint cases, patients should not be subjected to operation until less radical measures have failed to give relief.

In any case a guarded prognosis should be given, and in many instances prolonged postoperative treatment of associated lesions of other parts of the lower urinary tract may be necessary before an absolute cure is effected.

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49 EAST FORTY-NINTH STREET.

Ether Dressings in Gynecology.—R. Condomin, in *Lyon médical* for March 1, 1914, calls attention to the valuable antiseptic, sedative, and resolving properties of ether when externally applied. In gynecology ether dressings may be employed over the abdomen, in order to influence a local or diffuse inflammatory process in the pelvis and lower abdomen, or in the vagina.

A NEW TEST OF BLOOD SERUM AND CEREBROSPINAL FLUID IN SYPHILITIC INVOLVEMENT OF THE NERVOUS SYSTEM.

A Preliminary Communication.

By ALFRED GORDON, M. D.,
Philadelphia.

The immense value of the Wassermann reaction in various affections of syphilitic nature no longer requires special emphasis. Speaking particularly of diseases of the nervous system, it is now pretty well established that in cerebrospinal syphilis, tabes, and paresis, the foregoing reaction is invariably positive either in the blood serum or the cerebrospinal fluid or in both. If at a given moment in any of these affections the reaction happens to be negative, it may be due to the presence in the organism of antisyphilitic remedies, such as mercury, iodides, or salvarsan. The Wassermann test is unquestionably a complex biochemical operation and can safely be undertaken only in a well equipped laboratory and by a well trained man. Its inaccessibility to the average man has led some investigators to devise simpler and less complicated manipulations. Now and then reports are published indicating new reactions in syphilitic disease, all tending to simplify and render the test for syphilis less and less difficult. While all have not been successful and do not all stand comparison with the Wassermann test, nevertheless they all seem to show that there is a possibility of finding some biochemical reaction other than that devised by Wassermann and thus simplifying the procedure in the search for such a common affection as syphilis. It has been my good fortune to devise a test which after some study has proved to be of some value. It consists of the following features: 0.5 c. c. of blood serum is placed in a test tube. Five drops of one to 100 solution of bichloride of mercury is slowly allowed to fall in the centre of the tube. The following phenomenon is observed. If the serum comes from a normal individual or from an individual suffering from other diseases but free from syphilis (as proved by a Wassermann test), the moment the reagent comes in contact with the serum, a cloudiness will appear which will rapidly increase in density so that at the end of five and sometimes ten minutes the entire or almost the entire amount of serum will present a thick gray mass with a slightly greenish tint. In some cases the thickness appears at once, in other cases shortly after the dropping of the reagent, and in still other cases, five or ten minutes later. In syphilitic serums the contact of the reagent produces not the foregoing thick mass, but only a foamy upper layer which remains as such for some time. Here we observe a distinct slight upper whitish and foamy layer beneath which the normal serum is evident; the latter preserves the same appearance and color as prior to the manipulation.

The contrast between the amount of coagulum, its density, its appearance, and its color is decidedly distinct. Moreover, if these altered serums are allowed to stand over night, the following striking condition will be observed. The foamy, whitish coagulum of the syphilitic serum will be dissolved and disappear, while the coagulum of the normal

serum, will fall to the bottom of the tube and will be superimposed by a clear layer of the normal serum.

The above described reaction requires certain specifications to be mentioned. The reaction is particularly distinct when the serum is perfectly clear and light, viz., free from chyle and blood corpuscles. The more transparent, light, and clear the serum is, the quicker, the more evident, and the more conclusive the chemical reaction will appear. In reddish serums the test is also very satisfactory, although not as prompt as in light serum. Nevertheless it can be easily detected. Here we also observe the same difference in the density of the coagulum, in its color, in its appearance, in the promptness of its formation, and in the sharp separation of the foamy upper layer from the clear lower layer in the syphilitic serum. An interesting reactive condition is observed with serums which after having been positive for Wassermann, become negative after a course of treatment with salvarsan. Here the mercury reaction is not entirely positive and yet not altogether negative. The coagulum presents an intermediary phase, i. e., it is not as thick, not as gray greenish, and not as promptly formed as in the normal serum; also it is not as foamy and not so distinctly separated from the underlying serum as in the syphilitic serum. The same characteristics of the reaction are observed in serums in which the Wassermann test is doubtful. All these special features tend to prove that the doubtful and the changed reactions just mentioned (from positive to negative) are, so to speak, transitional phases of the fundamental biochemistry of blood serum in syphilis.

Some difficulty is experienced in interpreting the reaction in chylous serum. The results of the test are not always the same. However the above described differences are present, but to a very slight degree, and with a little experience it will be noticed. On the other hand, in examining the serum of any patient for the foregoing reaction, the chylous character of the serum can be almost entirely obviated. It is a well known fact that if the blood is taken from a patient shortly after a meal, the serum will have the chylous cloudiness. If the blood is taken when no food has been taken for many hours, the serum will be chyle free. It is therefore easy to obtain a transparent and clear serum in every case by instructing the patient to remain without food the entire morning until the blood is withdrawn for an examination. The above mentioned difficulty is therefore removed. All the cases in which I succeeded in examining for the mercurial test were without exception controlled by the Wassermann test. The positive mercurial reaction in almost every case ran parallel with the positive Wassermann test. I say "almost," as in two cases of tabes which presented a negative Wassermann on serum but a positive Wassermann on the cerebrospinal fluid, the mercurial test was positive on serum. In one case of tabes, in which only the Lange's gold test was positive but Wassermann negative for both fluids, the mercurial test was also positive on blood serum.

The original cases examined for this new test are seventeen in number. They all belong to organic affections of the nervous system. They include:

Seven cases of tabes, one of paresis, three of myelitis, six of cerebrospinal syphilis.

Beside these special seventeen cases, twelve cases of syphilitic involvement of organs other than the nervous system have also been tested for the mercurial reaction. Gumma of a testicle, secondary eruption, primary chancre were among them. The results have been identical with those of the first group. The so called normal cases, viz., those with a negative Wassermann, presented various affections, ranging from insignificant paræsthesiæ and neurasthenic manifestations to diseases of the heart, lungs, and kidneys, also infectious diseases, such as influenza, typhoid, pneumonia, and malaria. A few individuals free from any visceral disturbances have also been tested, and the results were as described above.

I then turned my attention to the cerebrospinal fluid as obtained by lumbar puncture. The same reagent, in the same solution and in the same quantity, was used in testing the spinal fluid. The following peculiarity was observed. If five drops are allowed to drop in the centre of the test tube on 0.5 c. c. of spinal fluid, the latter will immediately or very promptly become cloudy if the Wassermann reaction on the same fluid is positive. If the latter is negative, the fluid will remain clear. If a tube with normal spinal fluid is placed alongside a tube with a syphilitic spinal fluid, and the reagent is dropped into each tube, the contrast between the two is most conspicuous. In some cases the cloudiness is very rapid and becomes more and more pronounced in the subsequent few minutes. In other cases the cloudiness is instantaneous, in still others it appears only a minute, two, or several minutes later, but it invariably appears.

In the majority of my cases the normal fluid remained transparent and without any trace of cloudiness. In two cases a very faint cloudiness appeared an hour after the manipulation, but the difference in the degree of cloudiness with the syphilitic fluid was striking. The latter, beside appearing promptly or instantaneously, was decidedly more marked than the cloudiness of the normal fluid. In some cases the fluids with the reagent were left standing over night and sometimes for several days; the cloudiness of the syphilitic and the transparency of the nonsyphilitic remained unaltered. In two cases the normal fluid with the reagent became cloudy, but only after standing several hours. The presence of the mercury reaction is to be determined from the immediate or rapid formation of cloudiness.

Another feature worth mentioning is the degree of cloudiness which runs parallel with the intensity of the Wassermann reaction. Four tubes were placed for examination. One contained spinal fluid whose Wassermann was + + + +, the other + + +, the third + +, and the fourth had a negative Wassermann.

The rapidity with which the cloudiness appeared and the intensity of the cloudiness in the positive fluids were instructive; the four plus fluid was decidedly more cloudy than the three plus fluid, and the latter more cloudy than the two plus fluid. The normal fluid remained transparent for hours.

For control, not only fluids with negative Was-

sermann were used, but also cases of meningitis in which albumin content is usually high. The spinal fluid in two cases of meningococcus meningitis were placed alongside the fluids with positive Wassermann. The above described contrast between the cloudiness of syphilitic fluid and transparent normal fluid remained identical in this instance. No coagulum was observed in the meningitis cases. It is therefore evident that the coagulum is not altogether dependent on the albumin content.

The cases selected for the test on cerebrospinal fluid were: Five of tabes, three of cerebrospinal syphilis, and one of transverse myelitis. With the exception of one case of tabes, all the cases presented a positive Wassermann reaction in the spinal fluid and in all the mercury reaction was also positive. In the case with the negative Wassermann, Lange's test was positive. The mercury reaction was here also positive.

Beside the special nine cases, a number of lumbar punctures were made on individuals suffering from other affections, and thus the spinal fluid was taken from several cases of essential epilepsy, neuritis, and migraine. The Wassermann reaction was negative in all. The mercurial reaction was exactly as described above for nonsyphilitic spinal fluid.

To sum up, it may be said that the reaction described here has shown such a uniformity in the results of my cases that I am warranted in bringing it before the profession with a plea for a more extensive trial. If its uniformity can be demonstrated in a very large number of cases, its practical value is too obvious to dwell upon. The facility with which the reaction can be carried out and the simplicity of its character may then be of immediate assistance at the bedside.

This communication is only a preliminary one. While the reaction is gross as I have described it, nevertheless several problems remain to be solved. The most essential one is to determine the factors to which is due the difference in the promptness of formation of the coagulum in blood serum and cerebrospinal fluid in various cases with a positive mercury reaction. Next in importance is what particular chemical element is present in the humors with a positive reaction that causes or assists in causing the formation of the coagulum. Future investigations will perhaps enable me to elucidate these as well as other problems intimately connected with the nature of this new reaction.

1812 SPRUCE STREET.

RADIUM IN CANCER OF THE BLADDER.

Applied by Means of a Cystoscope. Report of Case.

By WINFIELD AYRES, M. D.,
New York.

Reports coming from various men in this and other countries seem to have demonstrated the fact that radium has benefited, and possibly cured many cases of cancer. Cases that seem to have been beyond any form of help other than by constant use of morphine, have been wonderfully benefited, in that pain and other annoyances have been relieved and the rapid progress has been checked. Nearly every one, whether skeptic or enthusiast, agrees

that in nonsurgical cases radium is worthy of a trial. At present also there is a growing tendency to combine operation with radium treatment. The reason for reporting this case is twofold; first, because of the great benefit from treatment; and, second, the unusual method of its administration.

Radium rays are more easily screened, more easily applied, and, when properly handled, less dangerous to the patient than Röntgen rays. Especially is this the case in neoplasm of the bladder, where radium may be brought in direct contact with the tumor, an impossibility with the Röntgen rays. Against radium is the enormous cost of sufficient quantity to be effective.

It is the general opinion that too small a dose of radium will increase cell proliferation and a consequent more rapid growth of the tumor, but a proper dose causes disintegration of cellular structure. Reports that radium, instead of improving cancerous conditions, increases the rapidity of growth of the tumor, probably concern cases which have received entirely too little radiation. A slow growing tumor requires less radiation than one of rapid growth. In cancer of slow growth a small quantity of radium over a very long period, or applied repeatedly for short periods, is sometimes of decided

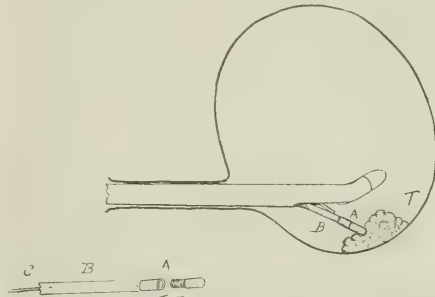


FIG.—Reprinted from a paper in the NEW YORK MEDICAL JOURNAL for July 18, 1914; shows the method of application of the capsule to a neoplasm.

benefit, but as a rule the quantity should correspond to the size of the tumor.

The most brilliant results so far obtained from the use of radium have been in epitheliomata of the superficial tissues. Cancer of the bladder wall simulates this structurally to such an extent that one would be led to hope a like brilliant result might be obtained here, or at least better than could be expected in cancer of the prostate.

As this case was an inoperable one, some means had to be devised for direct application of the screened capsule of radium. The instrument was described in the NEW YORK MEDICAL JOURNAL for July 18, 1914. Gold was selected for screening, because an extremely thin layer of this metal is sufficient to shut off the alpha and primary beta rays. Because of the difficulty of use and the nature of the tumor, a capsule of ten mgm. of radium was first employed, but this proving insufficient, the amount was doubled and again doubled. The use of the larger quantities was made possible by discovery of a cystoscope of unusually large capacity, and the second doubling was accomplished by using a higher concentration of radium.

It was necessary to use anesthetics, and the method which proved most satisfactory was to allow two ounces of a one per cent. solution of alypin to remain in the bladder for one half hour, and a one per cent. solution of cocaine in the urethra for ten minutes before the cystoscope was introduced. An irrigation tank was filled with a one per cent. solution of alypin and this was used to refill the bladder when necessary. In this way the patient was fairly comfortable, and only on very few occasions did treatment have to be curtailed on account of spasms of the bladder. During one treatment the patient fell asleep, but often there was a great tendency to spasm and the bladder contents had frequently to be changed. For this reason a second tank was always ready, filled with a solution of boric acid for use in the last few minutes in case the alypin solution should become exhausted.

Novocaine was tried with utter failure. Cocaine was used with partial success three times, but its action on the bladder wall from repeated and prolonged use was so bad that rest from instrumentation was made necessary for one week.

Treatment by this method requires a careful observation of asepsis, a very gentle hand, a steady nerve, infinite patience, care of the bladder on the off days, and hearty cooperation of the patient. Cystoscopy three times a week of a few minutes duration, is quite a tax on the resistance of the bladder and urethra, but when each sitting is prolonged for one hour, the danger of infection is still greater.

The question might arise as to why the cystoscope is necessary. Passage of a flexible container for the radium would certainly be easier on patient and physician, but there would be no certainty that the capsule would ever come in direct contact with the neoplasm. It certainly would come in contact with the normal bladder wall, and there would be no way of screening it from healthy tissue. But with the cystoscope the radium may be held in direct contact with the tumor all the time and the healthy bladder wall is kept from it by fluid—a poor screen, but the farther away from tissue, the less effect has radium on it. Therefore the writer believes the best results will be obtained by applications under direct vision.

CASE. Mr. S., aged seventy-two years, planter by occupation, was referred to me, May 4, 1914, by Doctor Alvarez. During November, 1913, he had noticed bubbles of air passing in his urine, and he was compelled to urinate every two hours. In December, he noticed in addition that his urine was tinged with blood. These symptoms persisted without change, until February when he found the amount of blood in his urine to be markedly increased. In March he had quite a severe hemorrhage and consulted a doctor in Havana. Cystoscopy was done, but the cause of the hemorrhage was not discovered. The patient had had three attacks of severe hematuria. The only thing which at all controlled the escape of blood was a decoction of *Desmonium supinatum*, a remedy much used in Cuba by the natives for control of internal hemorrhage.

On examination, Mr. S.'s urine was seen to be quite red and cloudy. The sediment was composed principally of blood, but there was a little pus and very many bacteria, that most numerous being a long, Gram positive bacillus occurring for the most part in chains. This was found to be a gas forming bacillus of unknown classification and will be reported in another paper. Nothing was found microscopically to indicate malignancy. The finger in the rectum disclosed nothing pathological and neither did palpation of his kidneys. The return wash from his bladder

was typically that of tumor, and the cystoscope revealed the growth. It was sessile, approximately an inch in all diameters, and projected from the lower left wall of his bladder, back of his left ureteral orifice. It was so situated that the left ureter crossed behind and about bisected it. It was apparently a solid mass with no projecting papillomatous offshoots. To the eye it was a typical cancer. A small section was sent to Doctor Sondern, who corroborated the diagnosis.

On account of the patient's age, the presence of three per cent. of sugar in his urine, and a blood pressure of 196 to 120, an operation for removal of the tumor with the necessary transplantation of his left ureter in all probability would have proved fatal. Even opening his bladder and placing radium in contact with the neoplasm for a number of hours seemed contraindicated in this case. It was therefore decided to use radium through the cystoscope. While the instrument devised and the special form capsule of radium was being prepared, an attempt was made to check the hemorrhage and get rid of some of the tumor by sparking. Four sparkings were given with very little effect on either hemorrhage or the size of the growth.

Ten mgm. of radium, screened by 0.5 mm. gold was the largest amount which would pass through my Buerger operating cystoscope. This was applied for the first time on June 22d and thereafter three times a week until August 24th. The first application was for thirty minutes, but on the third a full hour was given; in all 205 mgm. hours. The tumor began to disappear, the blood to cease, and large pieces of necrotic tissue to appear in the urine in about two weeks. But from August 12th, no improvement was noticed.

A new cystoscope had to be purchased and this was of so much greater capacity it was found that twenty mgm. could be used through it. This was used for the first time on August 31st and thereafter twice a week until October 19th. Each application with a few exceptions was for one hour—seventeen treatments yielding 320 mgm. hours. Under the stronger radiations the remains of the tumor began rapidly to disappear and large masses of necrotic tissue to reappear in the urine.

On October 19th, there was left only a sloughing area about an inch in diameter, the edges of which were slightly raised above the normal bladder wall.

On October 31st, cystoscopic examination showed the same sloughing area, but the necrotic tissue had dropped off the edges and their appearance was decidedly unsatisfactory. Cancerous tissue was unquestionably still present. Again on November 3d, the growth appeared to be taking on a new lease of life and further treatment with stronger radiation was deemed necessary.

Twenty mgm. were applied for one hour on November 4th and 9th. Beginning on November 21st half hour applications of forty mgm. were made three times a week until December 11th. A gold screen of 0.5 mm. thickness was used. On November 30th, Doctor Bissell being present in consultation, no evidence of cancerous tissue could be discovered. At the last treatment, December 11th, the bladder wall was seen to be markedly irritated by the action of the secondary beta rays, and on account of spasms of the bladder only twenty-seven minutes could be endured. The condition of the bladder wall was unquestionably due to slight burning by radium and not infection, as there was no increase of pus in his urine.

Cystoscopic examination, December 18th, showed a sloughing area about one half by three fourths of an inch in diameter. The edges of this slough were even with the bladder wall and no sign of malignancy was discernible. His bladder was very irritable, but no distinct burn was discovered. His urine contained less pus than at any time since he first came under observation.

It was exceedingly interesting to watch the progress of the case. During the earlier sessions application of radium would, in about ten minutes, cause a blanching of the surface of the tumor, and in a very short time thereafter shreds of whitened tissue would form on the surface and drop off into the bladder fluid. After twenty mgm. had been applied a few times the tumor presented only a sloughing, raised area, and the blanching action of

the radium could no longer be observed, but more necrotic tissue was thrown off at each sitting. Often during treatment large pieces would become detached, and from two weeks of the first treatment more or less would pass off with each urination until December 7th. From that date no large masses were observed. Blood began to lessen in quantity during the second week, but appeared at times up to December 11th. In the writer's opinion a fair proportion of this was due to instrumentation—holding a solid metal against a vascular or ulcerated surface during spasms of the bladder, but sometimes during the earlier periods of treatment considerable blood would follow the passage of a particularly large piece of tissue.

The fact that no large pieces were seen during the last eleven days of observation, would indicate that the substance of the tumor had been destroyed and only bladder wall left at the site of the tumor, corroborating the cystoscopic findings.

Mr. S. has returned to his home in Cuba, but will again come under observation after the cold weather. If at that time any evidence of malignant growth is discovered, further applications of radium will be employed.

Mr. S. was given 265 mgm. hours from a ten mgm. capsule of radium; 360 mgm. hours from a twenty mgm. capsule; and 180 mgm. hours from a forty mgm. capsule; in all 795 mgm. hours. Probably fewer mgm. hours would have been sufficient to accomplish the same result had forty mgm. been used from the first, but because this was the first time radium had been used in this manner, the method followed was probably the best.

A gold screen of only 0.5 mm. thickness is not sufficient to shut off all the primary beta rays from a forty mgm. capsule of radium, but one mm. prevents practically all these rays from passing. As the 0.5 mm. screen was used, it might be deemed probable that the slight burning of the bladder was caused by the primary beta rays, but another patient under treatment at the same time was given half hour applications three times a week with a one mm. gold screen, and his bladder reacted in exactly the same manner. Evidently the secondary beta rays caused the burns in both cases. A screen which will shut off both primary and secondary beta rays has been devised for use with the cystoscope, and will be tried as soon as it is delivered. It is evident that forty mgm. cannot be applied for a half hour three times a week with only a one mm. gold screen.

Care of the urethra and bladder during the course of such a treatment is of vital importance. After the cystoscope has been removed, the urethra and bladder are washed without a catheter, with a non-irritating antiseptic and then two drams of oil are injected into the bladder. On the days when radium is not used the patient must also report for urethral and bladder irrigation with the soothing antiseptic. During any period of rest from treatment, an occasional wash of silver nitrate is of decided benefit. Hexamethylenamine is of a certain amount of value, but a combination of belladonna and benzoate of sodium is better, especially when treatment is being pushed to the limit of endurance.

Radium in this case has been a decided success.

I do not maintain that a cure has been accomplished, but the tumor has been destroyed more thoroughly than it could have been by any means except operation. The action of radium emanations on cancerous tissue continues for quite some time after applications have been discontinued, and it is possible that there will be only a slight return, which may be kept under control by further use of radium and quite probably prevent any serious urinary complication so annoying in cancer of this tract.

This case seems to prove that in inoperable cancer of the bladder wall, we have in radium an agent which will cause at least temporary disappearance of cancer growth much better than any known remedy.

616 MADISON AVENUE.

MANNERISMS AND THEIR RELATION TO THE PSYCHIC LIFE.

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Spitzka, in 1887, made the following statement: "To the experienced alienist there is no more suggestive sign of mental disorder than the insane expression, attitude, and manner. What is a more faithful indicator of a morbid psychic condition than the thoughts and their expressions in the patient?"

To those who are continually coming in touch with persons afflicted with mental trouble, it is interesting to observe how frequently the author's deduction is borne out during one's daily round through the wards; here, perchance, a paranoiac steps forward as you enter, and in a lofty manner informs you that he is a king among men; there a paretic wearing a self satisfied smile, tells you that he is perfectly happy, feels very well, and is worth millions of dollars; the catatonic stares vacantly at the wall, while the manic depressive, restless and excited gives voice to his wild flight of ideas, or, dull and retarded, sits on a bench the picture of abject depression.

But not only do the three attributes mentioned above cast some light on the general trend of thought, but they may at times serve as a key, figuratively speaking, with which we may be able to unravel a psychological tangle and disclose the nucleus of a complex which through its efforts at expression, has gradually changed the personality. "Just as the twig is bent, the tree's inclined," is a verse which seems to bear out the truth in many instances, for aside from the continuous flow of sensations passing throughout the body to the mind, there are the many and varied influences exerted by the nature of the environment, which either individually or collectively, according to the impression they make, by means of the interest or feeling they arouse, slowly but surely mould the character, producing a personality which is the result of the individual's reaction to the ups and downs of life.

The mind is a complex of adjustable mechanisms by means of which we are able to adapt ourselves to our surroundings; but its capacity has its limits and varies in different individuals and in the same in-

dividuals under varying conditions of health and circumstances; and as the normal being may at times find it difficult to adjust himself to association with temperaments entirely foreign to his own, how then may we wonder at those unfortunates who perhaps, once capable, have later found their way to an institution because of their failure to cope with the world? Naturally they shrink from it, and retiring into a land of fantasy, they find their happiness in wish fulfilling dreams where the life wound is pushed aside and forgotten, being hidden from the content of thought.

We have been shown by teaching and experience that the ideas which come to our minds, tend to link themselves together about a central point of interest, each individual idea, however, having a direct bearing upon that point. It is quite evident, therefore, that when a mechanism of this type is repeatedly brought into action under the same conditions, it does not necessarily require the governing power of judgment to enter into its composition, but only the initial impetus of the will to start or check it. In other words, a habit is formed. This fact is quite evident in the every day life of the normal individual, whose existence is to a great extent made up of a series of habits. The daily routine of business or professional life invariably becomes, to a greater or lesser degree, a definite system, based upon repeated experiences, and it is only at moments of conflict that true consciousness is aroused to action. How often have we observed the trifling peculiarities of those about us; the person whose mind is taken up by some problem requiring close concentration or deep study, may occasionally pass the hand through his hair, stroke the forehead or beard, twist the corners of his moustache, or pace the floor with his hands behind his back. He pays no heed to these "mannerisms," if we may term them such, they have become a habit with him.

Every race has its customs and eccentricities, many of them no doubt being based on superstition and inherited religious beliefs; and what may to the casual observer appear utterly absurd, will in many instances, if the reason is sought, show its origin in the symbolic expression of some desire pertaining to the preservation or advancement of the individual or his kind. Percival Landon, in the *Opening of Tibet*, gives a very interesting account of the religious customs and practices of these strange people, in speaking of whom he says in part: "They have certain chortens or cairns, which are public charms, set up at intervals along the highways, and in passing by one of these, you must always go to the left in order to keep the evil spirits away." Again he calls attention to the Tibetan monk who is constantly whirling his prayer wheel for the benefit of some one of the faithful and incidentally for the good of his own pocket. And so we have only to turn back the pages of history to find that the customs and manners peculiar to different ages and races have each their definite meaning tending toward the goal of wishes fulfilled. Why, then, should we wonder at the apparently meaningless quirks and oddities of those in whom reason has been dulled and biased by a dementing process? "Every psychic fact has its definite psychic cause."

Bearing further upon this subject, one writer re-

marks: "In those forms of insanity which are associated with terminal dementia, peculiar movements are often observed which seem to be without purpose, but which, it appears, the patient is obliged to go through with as if driven by some unseen power." He cites a case where a patient could not pass through a certain street without touching every post on the way, and in crossing a certain threshold, he regularly turned a pirouette. A similar case is under observation here at the hospital; this man while on his walk through the grounds, will frequently leave the path to pass around some tree, or again while going through the main corridor of one of the buildings, he will suddenly sit down upon a bench, jump up again, and pass on; when asked to explain this maneuver, he replies, "I do it for safety."

There are many other cases here at the institution which show the stereotypes of attitude, manner, and speech, and although a number are quite inaccessible, and simply answer, "I don't know," to almost any question asked, yet there are a few who show a considerable degree of intelligence, and willingness to cooperate, so that by studying each case, and gaining the confidence of the patient, we are at times able to unearth some of the facts upon which their stereotypes depend.

Some authors believe that many of these have their origin in delusions which have been obliterated by dementia, only the movements, so to speak, remaining, and becoming a habit; yet others hold that this explanation certainly does not cover all the cases; again the theory is advanced that the automatic actions observed in certain cases of catatonia, and this undoubtedly covers the mannerisms, are associated with a reduction of consciousness which causes a loss of control over the psychical processes, the motor disturbances being only symptomatic expressions for the degree of psychic tension; again it is asserted that there is a disturbance of attention, this often being so fixed by pictures, viz., "visual hallucinations" shown the patient, that he can only with difficulty rid himself of them; it is quite evident, therefore, that the course of ideation is retarded.

Kraepelin, in reference to dementia praecox, the disease in which undoubtedly the mannerisms are most prominent, writes that in connection with the disturbances of will power in these cases we frequently find a tendency to an automatic adherence of will impulses. This appears in repeating the same movements and actions in the sense of imperative automatism. Every morning upon entering one of the wards I am greeted by a patient who, rising when I approach, remarks: "May I speak to you, Doctor?" Without waiting for a reply, he adds, "Restore my liberty." This is said with a smile and apparently without the slightest trace of anxiety or realization of the fact that he has been assuming the same attitude, and asking the same question, every morning for the past year. When questioned as to why he repeats this phrase so often, he replies, "My first thought is liberty, and when I see you I feel compelled to rise and say it." Another patient when not out upon the lawn, spends the greater part of the day pacing one of the short corridors on the ward; he usually has a large roll of newspapers stuffed behind his back and supported by his suspenders. He

is continually pulling at his hair until at present he has worn several bald spots at the poll of his head. When questioned regarding these mannerisms, he said, "I must walk! I cannot sit down! I pull my hair out because it gives me relief from my thoughts." Another patient who has a habit of striking himself at intervals, on the head, remarked, "I have to do this, because I am trying to kill the snake in my brain."

At this point it may be well to consider the part which previous occupations play in connection with many psychoses. Observation convinces us that many of our patients live in a world of past experiences in which their different pursuits play a prominent part, their mannerisms being merely the residue, so to speak, of habits formed in the past; or, to quote Kraepelin, "the tools of the will possess long acquired settings that favor a rhythmic repetition of the same discharge," and "their influence will become evident as soon as the instigations are absent, which serve as realization of the final or end ideas." An example of this is seen in a patient here, who, formerly a tailor by occupation, is often seen passing through the motions of one sewing cloth.

Brill, quoting the Freudian view, believes that many of the mannerisms are identified with the sexual life, symbolizing something pertaining to the sexual complex. To bear out this theory he cites a case in which the patient had a habit of rubbing his head at intervals in one spot until he had worn a good sized tonsure; subsequent analysis showed, that being prevented from masturbating by constant watching, he symbolized the act by a process of substitution, and thus the true cause of the mannerism was ascertained.

It would appear from what has been said that, if we desire to gain a more complete understanding of the causative factors concerned with these cases, we must not be content with the idea that the stereotypes and mannerisms are simply the outward manifestations of hallucinations and delusions; for although these undoubtedly play a prominent part in the etiology; nevertheless we should seek a deeper and more stable foundation upon which to rest our belief.

The law of self preservation is the first law of nature, and in order that this may be fulfilled, the processes of nutrition must come into action so as to keep the body well nourished; as the chief function of man is reproduction and propagation of his species, we naturally assume that this is dependent upon an intact and healthy body. Normally the sexual appetite is on a par with the other desires and requirements; as hunger is the impulse which prompts us to take food, so the libido is the impulse which prompts sexual intercourse, this in the average individual having for its sexual object one of the opposite sex, and for its sexual aim, normal coitus.

As the hunger impulse begins in early childhood, so the libido in some form gradually begins to assert itself; but as the child mind must depend upon the special senses, in order to form a conception of the environment, it may, either because of irritating or pleasure sensations, lack of moral influences, or malicious design, form an erroneous sexual ideal, and the libido be directed along perverse lines; while

again in seeking the nipple for food, he may if deprived of it, derive satisfaction by a process of substitution even though the nourishment is not forthcoming; he symbolises the act and sucks his thumb. Still later, if forced to abandon this, he may in some cases form another habit which compensates for and indirectly symbolizes the original; and although this in turn may be dispensed with at the age of judgment and discretion, or even before then through fear of punishment, nevertheless, as the body often shares in the activity of the mind, in moments of abstraction, a shadow of the original or its substitute may crop out.

Why, then, should the mannerisms of the insane be a source of wonder, curiosity, or ridicule, especially when we consider that in many cases the libido is focused on aims and objects that are seldom realized, and this in itself may serve to change the entire aspect of things. Aside from this, a life wound may exist which must be guarded, and this perhaps, being aggravated by varied and often fantastic hallucinations, makes them, to use Bleuler's expression, "autistic," or turned away from reality; and to quote still further from this author, "they have retired into a world of subjective ideas and wishes; to them reality can only bring interruption; their stereotypes, peculiar attitudes, and other quirks have an especial relation to the complex, for they are often the realized fulfilment of their wishes, the essential part of happiness itself; they have grounds enough, therefore, to defend themselves against anything likely to rob them of their pleasure; and yet," he continues, "the imagined happiness is not always absolute; it may be destroyed, not only through the influences of the world and the conception of reality, but in its place much more often appears the sense of unreality and unfulfilled wish." One patient here at the hospital who suffers from auditory and visual hallucinations, will at times without warning suddenly throw himself on a bench, screaming and moaning as if in agony; when asked the reason for this outbreak, he stares vacantly at the examiner and replies, "Nothing is the matter." Another paroled man while walking about the lawn will at times burst into a loud peal of laughter without any apparent cause; when asked concerning the reason of his merriment he replies, "I was just thinking of something funny."

Perhaps the two following cases may be of some interest, not alone from the mannerisms which they present, but also because of the opportunity which they afford to bring out their relation to the sexual complex:

CASE I. The patient, with a case of hebephrenic dementia, *præcox*, in whom, however, the grandiose ideas were quite pronounced, gave the following history: "My parents were healthy people—physically, I mean—but not one of them possessed a distinct personality; as a matter of fact, each at times represented some great figure of the age. My grandfather, for example, was called Peter, and at times he appeared to me as Peter the Great; Peter, king of Servia, or Peter the Apostle; they were all one. My father was John; I am John. After being educated in law and theology, I was sent to an asylum in order that I might be able to lecture on the subject when I was released." This portion of the story he accompanied by peculiar markings on a sheet of paper, which he said represented a wireless code, and gesticulations as if writing in the air. "Finally I arrived here. Subsequent to my sojourn in this place, however, I wrote to Ohio, where the dear lady with whom

I live resides, urging that she leave me because of the suffering which I was forced to endure for her sake; I then went to my own sanatorium under the direction of Doctor C—, and while there I spoke of the dear lady, Mrs. S—, to the physicians and nurses, saying that she had suffered so much that she was physically unfit to stay with me, but as far as I am aware no action was taken in the matter.

Entering the Government Hospital I soon discovered the condition of my female companion to be so weak that I suffered from lack of strength; I then requested her to leave, but she refused; many times I have asked her to go, but she still remains. During the past few months I have frequently found it necessary to lie down on the couch for an hour or so during the day in order to recover strength for proper living, and also with the object of bringing about action whereby she may be lovingly compelled to go; considering that she is physically unfit to stay, I request that she be very kindly forced to depart, and my case be put in the care of some more competent woman.

Throughout the entire narrative the patient was constantly making various marks and figures on a sheet of paper, each of which he said was a telepathic sign and had an especial reference to him; and he remarked, "She is continually talking to me by means of our code, so I must answer her; she is one half of my being; you see my position; she is not physically able to continue the sexual intercourse which she desires."

The patient then drew a few more figures and continued: "The fact is, I am the centre of attraction; everything has been done for me; buildings have been erected, magazines printed in many of which I see faces which represent various members of my family; architecture, art, manufacture, poetry, and government, are all for me; the red flowers you see out there on the lawn signify the bloody war brought on because of my sufferings."

In presenting this case of sexual perversion, I have endeavored to show that the mannerisms observed are merely one of the ways in which the hidden complex is seeking expression. Here the distorted ego finds consolation in the creation of a dual personality, and retiring into the realm of wish fulfilling dreams, builds around itself a barrier of defense, within which he may reign supreme. Here all his hopes are realized; he is the centre of attraction; and in his egotistic nature, the merits and virtues which he sees in others, he attributes to himself; he loves her because she represents an attribute of his own personality in which his libido has found its sexual object.

CASE II. Patient, who is a sexual invert, but nevertheless, I believe, to use the Freudian nomenclature, "psychosexually hermaphroditic," gave his story as follows: "For the past three years I have suffered from voices which call me bad names and accuse me of foul and perverse sexual practices, often saying that they will make me do these things. People talk through my brain—both men and women. The first voices I heard, however, were those of men; and I was afraid. In fact, I have been afraid all my life, yet I cannot tell why, because I never was guilty of such things. It seems as if I were surrounded by a circle of voices, some even coming from across the country."

When I was a baby it seems that I was possessed of the "all seeing eye"; and since then, these people have been trying to gain possession of it; in order to do this they force me to draw fluid from them which depletes their brains and enables them to receive the all seeing eye; and so it keeps me continually removing the froth from my mouth; I am tortured by it. When this saliva comes from men it has an acid bitter taste; but when it comes from women it is sweet; you see there is a life connection between myself and a certain lady, and there is also a rather loose bond between myself and a certain man; at times I am seized with a great fear and it then seems as if some man were trying to draw me toward him; again at times it seems as if I were an old man like unto my father, and at these times I long for intercourse with women; in fact, during these periods it seems as if he had entire control of my being; and yet at other times it seems as if I were a woman and longed for sexual relations with men."

Perhaps in this case also we may reduce the mannerism to an expression of the sexual complex: Thus in infancy he was possessed of the all seeing eye, which is symbolic of his exalted ego; others covet his treasure and endeavor to deprive him of it by means of foul and perverse practices; thus they are responsible, not he. Again the complex seeks another path, and finds expression in the role of the parent and child: He is like unto his father, perhaps even he; and so, as the result of the struggle between suppressed desires and sexual attainments which may never be realized, his inverted mind finally reaches a compromise through the transformation of personality, while the libido, being suppressed, finds expression in the symbolic defense reactions, fear and loathing.

It may be well before concluding again to bring forward some of the more important etiological factors associated with the production of mannerisms: As previously stated, the majority of persons exhibiting these peculiarities live in a world of subjective ideas wherein hallucinations and delusions undoubtedly play an important role. This necessarily causes a reduction of consciousness for events other than those pertaining to that world; their attention is so fixed and their interest so centred on what is occurring therein, that they can, with difficulty only, be aroused to a sphere of existence which in many instances is far less real than the one in which they live. They are annoyed by interruptions which recall them from the land of fantasy in which their dreams come true; and so we observe them, each expressing his train of thought in a manner peculiar to himself; and that which may seem odd to us is perfectly natural to them, every act having its definite reason and cause. Many of them suffer because of their complexes, for, as expressed by White, "no matter how high the barrier of defense, the pain is still within and has to be reckoned with."

Again, the disturbances of the will are to be taken into consideration; and, as exemplified in the phenomena of schizophrenic negativism, in a number of instances, these have an important bearing on the etiology of many of the stereotypes; the cross impulse, automatic adherences, and nihilistic ideas each contributing their part.

Bleuler writes: "Any action may be modified into a schizophrenic mannerism; these and in part also the stereotypes," and here he seems to draw a distinction, "are not explained by isolation, but rather through the lasting, permanent effect of the complex. Even the normal man has the inclination at times to exaggerate, or at least strongly emphasize those expressions which correspond to his wishes. Vanity is recognized by dress and manner, pride in the bearing."

It seems, therefore, after considering the situation from all points, that if one were to seek for the true origin of stereotypes and mannerisms, he must necessarily arrive at the "complex" as the goal of his endeavor; for about it are woven the mechanisms which not only go to make up the individual traits of character, but those which stamp one as a distinct identity. That the complex is sexual in origin there seems to be but little doubt, for no matter in what form it may find expression, analysis will reveal in

its nucleus some event bearing upon the existence of the individual or one of his kind.

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FOOT AND MOUTH DISEASE.

A Contribution to the Etiology.

By F. PROESCHER, M. D.,
Pittsburgh.

The investigations of Loeffler and Frosch¹ have shown that the unknown causative agent of the foot and mouth disease is a filterable virus. With these investigations a new class of microorganisms was discovered for which the name "filterable" or "ultramicroscopical" or "invisible virus" was coined. At present we know about twenty-six diseases common to man and animals which are alleged to be filterable, e. g., rabies, poliomyelitis, variola, etc.

The filterability of the microorganisms of these diseases led to the erroneous conception that they were microscopically invisible, or in other words, that their size was less than 0.1 micron, below the

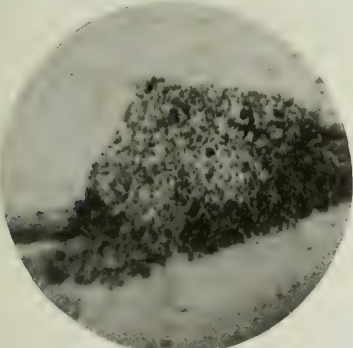


FIG. 1.—Smear from pustular contents, foot and mouth disease. Case I, Methylenazur; Leitz ocular 2; objective 1/12; oil immersion.

intransgressible limit of the microscopic visibility. Esmarch, Nocard and Roux, and Borell have shown that *Spidillum parvum*, the virus of peripneumonia of cattle and the virus of *Epithelioma contagiosum*, in spite of their filterability, can be made microscopically visible. While these microorganisms are easily stained with the common basic anilin dyes,² the virus of rabies³, poliomyelitis⁴, and variola⁵ cannot be made visible in the primarily affected tissue by this method of staining (central nervous system, epidermis).

¹*Centralblatt für Bakteriologie und Parasitenkunde*, I, 28, p. 371, 1898.

²For further information upon this subject I refer the reader to my article, *Azurophile Microorganisms*, *International Clinics*, 1913, iv, 23.

³*NEW YORK MEDICAL JOURNAL*, July 4, 1913.

⁴The staining method advised by Flexner and Noguchi for the poliomyelitis virus in smears from infected central nervous system is based on my investigations. They liberate the methylenazur base of the Giemsa solution by adding sodium hydroxide, virtually using my method. The microorganisms found by them are identical with those I found previous to their investigations.

⁵*NEW YORK MEDICAL JOURNAL*, April 12, 1913.

I have shown that the above mentioned viruses can be easily stained with the free bases of certain thiazin dyes, methylenazur, methylviolet, etc. It seems that the adaptation of these microorganisms to certain tissue substrates gives them a peculiar chromatophilia. This fact seems to be confirmed by the recent success of the artificial cultivation of the poliomyelitis⁶ and rabies virus⁷. As soon as

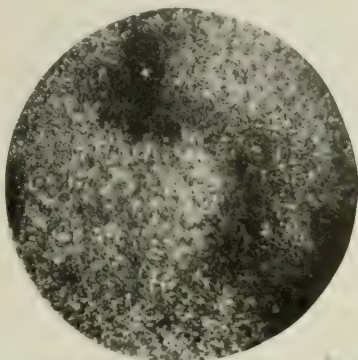


FIG. 2.—Smear from pustular contents, foot and mouth disease. (Case II, Methylenazur; Leitz ocular 2; objective 1/12; oil immersion.

these microorganisms are adapted to an extracellular life in a cell-free medium, they change their basophilic azurophilia to a panchromatophilia, which means that their protoplasm acquires an affinity for all common basic anilin dye salts.

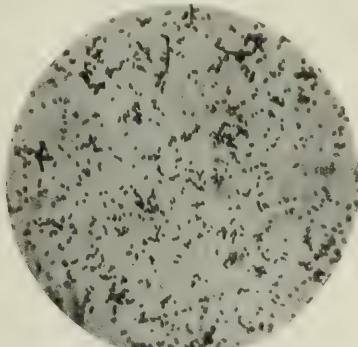


FIG. 3.—Poliomyelitis virus, ascites bouillon culture. Methylenazur; Leitz ocular 2; objective 1/12; oil immersion.

The successful staining of these microorganisms made it desirable to apply the methylenazur staining method to other unknown filterable viruses.

While in Europe, in 1912, I had an opportunity to obtain material from two typical cases of foot and mouth disease of cattle. The pustular contents were taken with aseptic precautions by means of sterile glass pipettes and thin smears were made on slides. With the usual bacterial stains, carbolfuch-

⁶*Journal of Experimental Medicine*, 1913. I confirm the cultural findings of Flexner and Noguchi, as I was able to cultivate the same microorganisms which they describe from the central nervous system of monkeys infected with poliomyelitis.

⁷*NEW YORK MEDICAL JOURNAL*, November 14, 1914.

sin, methylenblue, and Gram stain, only a few bacteria and cocci were seen, which are, without doubt, ordinary bacterial contamination. With methylenazur, an enormous number of extremely small cocci⁸ in the form of diplococci or diplobacilli, some-

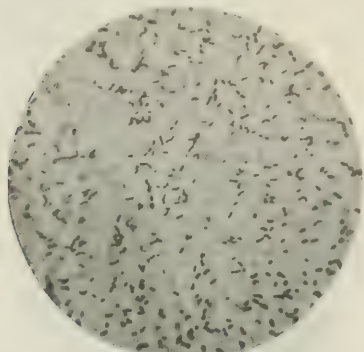


FIG. 4.—Rabies virus, ascites bouillon culture. Methylenazur Leitz ocular 2; objective 1/12; oil immersion.

times appearing in short chains, closely packed together, were made visible. The majority of the microorganisms are just within the limit of microscopic visibility (0.1 micron); the largest form are about 0.2 of a micron. They are metachromatic violet blue; few are stained deep blue. In places where the organisms appear widely separated, they seem to be surrounded by a small colorless capsule. A glance at the accompanying photomicrographs

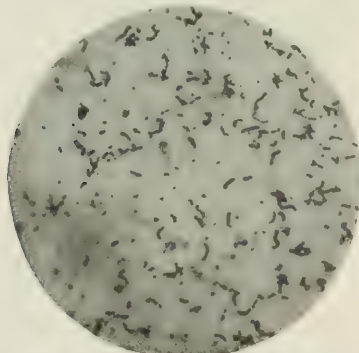


FIG. 5.—Streptococci, ascites bouillon culture. Methylenazur Leitz ocular 2; objective 1/12; oil immersion.

will readily show that these microorganisms are the smallest of the visible filterable viruses, being smaller than either poliomyelitis or rabies microorganisms.

It would be premature to draw any definite conclusion from these two cases of foot and mouth dis-

ease as to the etiological agent of this disease, but the enormous number of these microorganisms, the inability to stain them with the usual bacterial stains, their basophilic azurophilia, make it probable that they are the specific virus of the foot and mouth disease. Inasmuch as I am unable to secure fresh material, I must leave further investigations of this important disease to those who are able to obtain material of foot and mouth disease during its present prevalence.

6356 MORROWFIELD AVENUE.

FOREIGN BODY IN THE PSOAS MUSCLE.

Simulation of Hip Joint Disease.

By PRESCOTT LE BRETON, M. D.,
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In an article entitled, Some Conditions Simulating Disease of the Hip or Spine, in the *New York State Journal of Medicine* for December, 1912, the writer cited seven cases in practise in which the diagnosis of spine or hip disease was made, to be charged later to the diagnosis of abscess near the spine or in the



FIG. 1.—Posture before operation.

FIG. 2.—Posture two months after operation.

psaos, of tuberculous kidney, tuberculous appendix, and retroperitoneal carcinoma. To this list may be added this case of a common pin emerging from the bowel, penetrating the psaos muscle and causing an abscess which by its presence produced a clinical picture of hip disease. The diagnosis was made wholly by the x ray picture and complete recovery followed removal by operation.

CASE. P. J., aged fourteen years, referred by Doctor Garratt, April 11, 1914, had had scarlet fever when five

⁸Siegel (*Berliner tierärztliche Wochenschrift*, 50, 1911, and 11, 1912) has described recently a very small coccus 1—2 micron in diameter, which could be stained with methylenblue and Giemsa solution. The artificial culture of this microorganism produced in pigs and cattle a disease similar to the foot and mouth disease. Analogous observations are reported by von Betagh, Huntemueller, and Nicolaus. I am undecided as to whether or not the cocci described by myself are identical with those observed by Siegel.

years old. During convalescence there had been for a time pain in the right leg and some limp. Since that time his health had been good. In the spring of 1913, an illness began which at first resembled neuritis, and kept him home for a month. The symptoms were pain at night in the front of the right thigh, and a slight limp. Then there was a period of improvement during the summer. In the fall, a burning pain in the thigh would recur, with limp, flexion of the thigh, and a body sway to the right. During the winter, anemia developed, a loss of ten pounds in weight, and occasional fever. The postural deformity of spine and leg increased until it was very marked. The attending physician changed his diagnosis to hip disease and an x ray was asked for. Doctor Garratt made the picture and asked the writer to examine the patient. There was 48° flexion of the thigh; one and a half inch atrophy of the thigh, and one inch atrophy of the calf. As soon as the hip was flexed, motion was free and painless. On palpating the flank over the psoas muscle, an ill defined

the sacroiliac joint the length of the index finger from the crest of the ilium. The wound was partially sewed up and a tube inserted. Healing was complete in two months and the boy is now in splendid condition. The pain, muscle spasm, and deformity rapidly subsided after the operation. When the drainage tube was replaced after cleansing, the friction of the tube caused the old painful sensation in the front of the thigh. The pin was black and coated with dense crystals. There was no history to be obtained about any pin. It must have been swallowed, worked its way out of the cecum into the psoas muscle, allowing an infection with *Bacillus coli communis*, and causing psoas spasm with referred nerve pains from the lumbar plexus.

125 ALLEN STREET.

TONSILLECTOMY.*

By CLARENCE H. SMITH, M. D.,
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The object of this short paper is to present for consideration a thorough and comparatively simple method for the removal of enlarged or diseased tonsils. The time has passed, I believe, when anything short of complete enucleation should satisfy us. With each succeeding year in the past decade, the popularity of tonsil removal has grown. The work of the school medical inspectors in discovering diseased tonsils and in calling the attention of parents to them, and the various educational means in the form of public lectures in educating the laity to their harmfulness, have sent the patients in droves to their doctors and to the various hospitals for the advantages to be obtained by the removal of these glands.

Tonsillotomy was for years the operation in vogue. The tonsil was pressed from out of its fossa as well as might be by external pressure exercised by the operator or an assistant. This was aided by counterpressure internally of a guillotine, the ring of which engaged the tonsil. Then the blade was pushed home and a large or small portion of the tonsil was severed, depending on the anatomical formation and the amount of tonsil hidden behind the anterior pillar.

In very many cases this method was, and is quite a satisfactory one, yielding perfectly good practical results, but the operator could never feel certain, especially in very young children, that the tonsils would not again undergo hypertrophy and necessitate subsequent removal, as in most cases so operated in, the whole gland is not removed. Recurrence has done a great deal to discredit the value of operations for the removal of tonsils, and to obviate it a number of methods have been devised, aiming at the removal of the tonsil complete in its capsule.

These operations consist of seizing the gland with volsellum forceps, dissection of the tonsil by blunt or sharp separators or knives down to its attachment, the placing of a loop of wire in a snare over the pedicle, and its severance. The snare operation



FIG. 3.—X ray, showing pin.

swelling was made out, tender on pressure. So an x ray of the spine was made with the idea that the condition was a low grade Pott's disease, although there was no cyphosis, but simply muscle spasm. The x ray disclosed a common pin, coated with crystals, parallel to the crest of the ilium and about two inches from the spine.

Operation was done, April 18th, at the Buffalo General Hospital, with the assistance of Dr. Herbert Smith. The incision was made parallel to the crest of the ilium and one half inch above it. The fascia was divided, muscles were separated, and the peritoneum was retracted. The tissues were hard and dense. A direct cut downward toward the crest of the ilium at the site of the pin went through the tough wall of an old abscess, which discharged a quantity of thick, foul pus. The sac was U shaped, one arm running down inside and the other outside the pelvis. Gradually the entire wall of the abscess was excised, and it was not until near the end of the operation that the pin was located and extracted, not where the x ray had shown it, but in front of

*Read before the Bronx County Medical Society, December 16, 1914.

is more difficult than the method which I intend to describe presently, takes a longer amount of time, and is not any more thorough. When the snare operation is done improperly, the pillars may be injured, producing serious voice changes and annoying throat sensations.

Enucleation of the tonsil by means of the index finger, an old method in vogue some twenty years

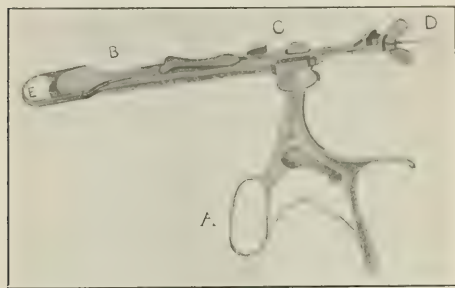


FIG. 1.—Beck-Ballenger modification of the Sluder tonsillotome.

ago, was revived, and it still has some enthusiastic supporters who hold it to be the best method. I have tried it and have discontinued it on account of the unavoidable trauma and the extremely severe reaction I have seen in a few of my own cases, as well as in the cases of others.

Within the last three years a new method, devised by Dr. Greenfield Sluder,¹ has come into prominence, and it has been so successful that it bids fair to surpass in popularity all other methods of tonsil enucleation.

It consists briefly in the new use of an old instrument, the guillotine. The Sluder guillotine is very like the Mackenzie, but is much stronger and the handle and blade holder are in one piece. The movements in the Sluder operation are very simple and few in number. The tonsil is engaged in the fenestrum, and is then pushed out of its bed by pressure upward, forward, and outward against the alveolar eminence of the inferior maxilla, which is made by the internal ending of the alveolus. The blade of the instrument is then pushed home and the tonsil is delivered. This, with some modifications, is the method which I have been using for the past six months, and it has afforded me so much satisfaction and is so comparatively easy of attainment, that I thought it of sufficient importance to bring to attention.

The instrument which I have been using is the Beck-Ballenger modification of the Sluder tonsillotome. A glance at the diagram will give a very good idea of this. Pressure on the lever handle A pushes home across the ring the blunt dissecting blade B. This is retained in position automatically by the ratchet C. Turning the screw, D, forces the sharp cutting blade, E, parallel with the dissecting blade. The various steps of the operation are as follows: The patient is anesthetized, preferably with ether. The position is on the back, with the face looking directly upward. The operator stands on the right side of the patient, the assistant on the

left. The mouth gag is on the side of the mouth corresponding to the tonsil attacked. When the right tonsil is operated on, the instrument should be held in the right hand; when the left is to be removed the instrument should be shifted to the left hand. The operator should directly face the patient. The distal side of the shaft is in this method applied to the tonsil instead of the proximal side, as is the case when the Mackenzie tonsillotome is used; this is an essential difference. The instrument is applied in this way: the shaft is introduced in the mouth with the transverse diameter of the ring vertical, at an angle of 45°, until the distal arc of the aperture is directly behind the tonsil. Pressure with this ring is then made in an upward, forward, and outward direction, and at the same time the ball of the index finger of the disengaged hand is used to exert counterpressure against the external surface of the palatoglossus muscle. When one feels that he has massaged all of the gland through the ring of the guillotine, he begins cautiously to push home the dull blade of the instrument by approximating the handle A. Care should be used to insinuate the blade between the gland and the anterior pillar, and if it is found that the pillar is caught in the bight of the instrument, the blade should be withdrawn and reinserted at the proper line of cleavage. When this is done satisfactorily to the operator, the dull blade is sent home all the way. If all the gland is incorporated in the ring of the instrument, one can distinctly feel the blade beneath his fingers with what seems to be a very thick layer of mucous membrane intervening. If all the tonsil has not been engaged, the feeling is quite distinctive; there is an irregularity, a convexity between the hard distal arc of the ring and the proximal arc. The blade is easily withdrawn

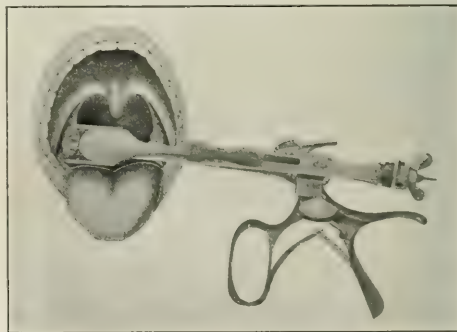


FIG. 2.—Method of tonsillectomy.

by releasing the pressure on the handle, A, and the massage is resumed until all the tonsil is engaged. The dull blade serves as a dissector of the tonsil from its bed: it is so dull in this instrument that it would take considerable force to enucleate the gland with it. When the operator feels, however, that the gland is entirely outside of the ring of the instrument, he can, by firm pressure on the lever handle, use the dull blade as an angiotribe for a few moments—in an adult I advise that this pressure be

¹ *Lancet*, N. Y. ed., March 25, 1911.

more prolonged. The next is the final step of the operation. The blade, E, is slowly pushed home in the ring of the instrument by turning the screw, D, and when this is completed the tonsil falls into the buccopharyngeal cavity. When this operation is performed properly the gland is found complete in its capsule without any other tissue or muscle fibre with it.

I have been using this method for the past six months exclusively in children, in every case that presented itself for operation. My experience has been very favorable. I have been able to enucleate completely every kind, except the soft, mushy tonsil. This has been very difficult to do. I know of no method, however, which is easy for this type of case. I have not tried it as yet in the removal of many adult tonsils, but intend to. I do not expect trouble, except perhaps with those tonsils which from frequent attacks of peritonsillitis show adhesions and scar tissue.

The amount of hemorrhage has been very trifling compared with the older methods, and secondary hemorrhage has been very rare. The operation consumes far less time than is taken to describe it, and this, of course, lessens the amount of shock.

In summing up the advantages of the Sluder operation, I call attention to its thoroughness, its simplicity, its availability in almost any type of case, the small amount of shock owing to the short amount of time consumed in the operation, and its comparative bloodlessness.

1060 CAULDWELL AVENUE.

CONDENSED MILK.

Some Aspects of the Product from the Latest Reports.

BY PAUL BARTHOLOW, A. B., M. D.,
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The question of condensed milk is many sided. Any one who has studied this subject seriously, as a problem of infant feeding, must have discovered the difficulty of getting evidence at first hand. This arises from several causes. First, the cocksure common sense of specialists regards mother's milk as the only food which it is possible to commend. In this state of opinion, many eminent physicians are set in a balance of doubt, or at most, nervously protest that they do not prescribe condensed milk. Secondly, among specialists, a desire to prove that it is injurious, may beget indifference to logic and to the laws of evidence. I know more than one specialist who, to prove the merits of mother's milk and the demerits of condensed milk, has put evidence and logic and common honesty far from him. Yet this is no reason for abandoning the study of condensed milk.

It is a question of evidence. Modern science, when it admits the possibility of frequent failure of breast feeding in the sick and healthy, also admits, of course, the existence of the necessity of a substitute such as condensed milk. The difficulty begins when we ask whether condensed milk ever has any effect in provoking disorders in babies outside the surrounding conditions of the child. This is a ques-

tion which orthodox specialists seldom approach with fairness, since they usually stand aside from any evidence which may be produced.

Those who oppose its use as a food for infants take the common ground of textbooks that condensed milks generally contain too high a proportion of sugar. It cannot be denied that this is a serious consideration, and that very startling consequences might be deduced from it; such consequences as justify the belief generally entertained of the deficiency of condensed milk in nutritive value in the age preceding weaning. At the same time the very opposite objection comes from some specialists. Sugar, we learn from them, is the only thing of value in condensed milks, since they are deficient in fat, and sugar makes them at once palatable and digestible. Perhaps nothing is so staggering to the critics of condensed milk as the well authenticated antiemetic property described by various authors. (*Bulletin de la société de pédiatrie*, 15, 1913, p. 46.) Excellently as this property of condensed milks has worked in practice, in the feeding of infants in an era of enlightenment a different plan has its merits. In this respect a wise manufacturer will advance to the rather unusual point of reducing the quantity of sugar and increasing the *proportion* of fat and solids, and so arrive at a standard, which without this change, the average physician might dismiss justly or unjustly as obsolete.

The nature of things and of knowledge has fortunately made this method at once easy, obvious, and scientific. Even in condensed milks at the present day, fat and salts are often adequate within certain limits, but it is objected that if they were made from whole milk, they should contain a much greater proportion of fat and milk cells than the milk from which they were derived. This objection, I think, presents no difficulty at all; it is admitted that condensed milks are deficient in fat, and we often reach the less rich in fat and milk cells as we advance to the most condensed. Thus, if we dilute a condensed milk, and stain it on a slide, after fixing, with methylene blue or Ehrlich's triacid stain, the proportion of fat globules, when these are counted, is comparatively low. The proportion of milk cells is found to be lower, instead of higher, than in whole milk. These occurrences are not very explicable on any known principles, though the low proportion of milk cells naturally conducts us to the supposition that they may be destroyed by the process of condensation. This is a detail to be sought and verified by experiment.

There is another class of difficulties. Some experts complain that condensed milks are not made from milk rich in fat. Excess of sugar and deficiency of milk fat is the burden of these criticisms. Since the authors of them do not mention the kind of milk which they censure, the criticism is no particular blemish on the best specimens. I do not think it necessary to discuss the processes involved in making an average condensed milk, skimmed or not skimmed. Our business is with those used on current authority, and these, for the sake of orderly arrangement, are classed in two grades, as they rise from the normal and familiar to the really superior.

The first are natural milks, containing the full cream, unsweetened and but little condensed. They

must be sterilized or they will not keep, and they are usually found sterile when examined bacteriologically. It has also been shown that, when once sterilized, they may be stored at ordinary temperature or even in hot weather without injury. In the second class, the milk is condensed to a quarter or more of its original volume, and sugar is added. The viscid product is usually not sterile; in fact, the temperature necessary to sterilize it, would damage the article. Thus it is found that if condensed milk of this kind is steamed at 100° C., it becomes brownish and solid. I have at various times observed this change, and it seems clear that in the preparation of condensed milk of this class, the evaporation is carried out under diminished atmospheric pressure at a temperature considerably below 100° C. Other causes of the brown color have been disclosed by recent studies. It may be due to acidity produced by bacterial fermentation, or again to the presence of tyrosin. This group includes some very good specimens, which contain the full cream of the original milk. But there is in this class another type of condensed milk, which is deprived of the greater part of its fat; in this product the manufacturer seeks to utilize the residuum of the vast stock of milk which has been left after butter making. The nutritive effect of such milk is very slight, since it is deficient in the most valuable food element—fat.

A good deal of light has of late years been thrown upon the subject by the researches of competent students, and it is now possible to trace the evolution of the clinical uses of condensed milk with comparative certainty. This is what Hummelinck and Sidersky have done in a learned and interesting volume, *II Congrès international de laiterie*, II, 6, 1905. Their work is mainly founded on a study of samples of condensed milk, which the writers had examined and administered to babies and adults. The volume is rendered the more instructive and valuable by the excellent tables and records taken directly from original studies. One of the results of scientific enlightenment has been to change our conception of the food, or group of foods, called condensed milk. We used to consider condensed milk as something unnatural, as matter in the wrong place, though entirely convenient to lazy and ignorant mothers. Human milk and health were natural; condensed milk and health were unnatural, that is to say, unnatural from the standpoint of the physician, though perhaps the right thing from the standpoint of the baby. That is a very simple and natural philosophy; it is a pity that the hidebound specialist is generally too fatuous to set a just value on it. What a vista of the kind of stereotyped formalities wrongly called specialism is here opened up! The child that has some departure from the normal which prevents its flourishing on its mother's milk, alternately cries and foams over it, seeking a food on which it can obey the universal law of increase and preservation—why should we deny it a food, even if that food be a part of our own prejudice? Why indeed? Yet the enthusiastic devotees of the prejudice which is raging among us at present in favor of mother's milk will not welcome condensed milk even on these terms. One of the latest writers, whose stock in trade is the theme of human milk, is Eric Pritchard. From his little book on *The*

Infant: Nutrition and Management, one might easily imagine that he has the disease very badly; there are the usual references to condensed milk, to this "most unsatisfactory food," some babies, however, prosper on it; they are "flabby and contented"; their mothers are pleased, and commit a fatal error; for they do not return to the back rooms at the dispensary to live on the advice of the physician, to hear how he blames women who do not nurse their infants and how he pays homage to those who do; advice which rings at the hospital and echoes in the pulpit; which is on the stage at medical meetings where women are regaled with it; which is in letters to editors, in advertisements, wherever the autosalpingal art is cultivated and agitation is superficial.

The complexities of the subject are most difficult to reduce to simple terms. Pritchard's state of mind is a striking testimony to this complexity. When he tells us that condensed milk contains an excess of sugar, that it is too easily digested and does not develop the functions of digestion, that it contains no antiscorbutic elements, nor vitamins, we feel that we are in the presence of a scientific, not of a medical problem; and if we see clearly that the scientific solutions are difficult, we do not perceive how the medical experience of Pritchard can help to find them; there are enough unsolved medical problems for doctors who, however, are scientific.

Probably the coincidence of the medical agitation with two events—the discovery of enzymes and the study of the biology of milk—is responsible for the corresponding movements against condensed milks and the flood of empty criticism in the textbooks. The textbook only mirrors medical society; it often lets us see an antagonism between doctrines of today and possible doctrines of tomorrow which nobody wishes to see come true; it hardly ever presents with any force a controverted question. How does the textbook enlighten us on these aspects of condensed milk, the enzymes and biology? Doctor Pritchard, who may be taken as the oracle for many people, who approaches the subject as the author of the textbook approaches it, writes highly conventional comments on it, which cause him to be taken as an oracle. For instance, he writes: "I have great faith in condensed milk as an easy stepping stone to better things, but as a permanent bridge between the period of early weaning and the solid food stage, it is full of temptations and dangers." The effect of this sentence is the same as if the faith itself in condensed milk had been a condemnation. In the *Milk Question*, Rosenau makes a ruthless criticism of condensed milks, but this does not prevent more experienced physicians, like Nobécourt, or Garrod, Batten, and Thursfield from writing of the service done to the health of babies by this food. (*Diseases of Children*, page 65, 1913). A good deal of uncriticalness and a little prejudice go a long way, and there is little else in the Rosenau view of condensed milk.

There is not the least doubt that if the question were left to scientists of this stamp, condensed milk would soon cease even to be talked about among doctors. With very few exceptions the more refined physicians are not only indifferent but decidedly opposed to it; whether it be from prudence or etiquette they think it uncalled for; they refuse to enter into

the niceties of the question, but they feel that the effort of its critics to carry their point betrays more futile antagonism than the resistance of the manufacturers; they realize more or less explicitly that if it takes a fool to deny the fundamental necessity of such a milk, it takes the silly obsequiousness of a pedant to assert the denial outside the lecture room; in short, they see that serious inconveniences are lurking under the superficial proprieties of the whole affair.

With that rare specimen of shrewdness and knowledge, the French clinician, the case is clearer. He is fully convinced that if he prescribes condensed milk, he can prescribe it sensibly, and in the meantime he devotes his energy to finding a means of diminishing the infant mortality. Loir has written an article (*Mortalité infantile et lait condensé, Bulletin mensuel du Havre*, 1911), in which he describes the effect of a superior kind of condensed milk during an epidemic caused by the heat at Havre. France, of course, is a very different country from America; there are in France as well as in French colonies (Nicolas, *Société de pathologie exotique*, April, 1912) valid reasons for using condensed milk; it is therefore something more than a name, and hence, supposing it were left to its natural champions, there would be no prospect of its vanishing from public attention. There exists, therefore, in France a group of men, like Nobécourt, Variot, Barbier, Silvestre, and Loeper, in whom intuitions of the medical element of sugared condensed milk have collaborated with the more practical knowledge of specialists like Hutinel and Biedert, and the efforts of these men have already eliminated some of the shocking inequalities between condensed milk and mother's milk. Such results, as well as those obtained by the study of the physiological effects of the various forms of sugar, do more for an adjustment of the defects of condensed milk than all the outward agitation of lecture, press, and commercial demonstrations.

The extension, as it were, of the application of condensed milk prepared by the biological studies of this group, may be realized some day by a tacit understanding of physicians with a class of manufacturers believing in it for mere monetary reasons. There are no signs of this change beside the success of investigations by Biedert, Barbier, Soxhlet, Schlossmann, and by an Italian professor, Concetti, but the effect of all this study is to explain the benefits of condensed milk in the cases mentioned above. Babies sometimes manifest an intolerance of cow's and mother's milk. If the infant is anaphylactic to its mother's milk, instead of being nourished or healthy, its chances may be small, for this sensitiveness is the worst enemy of digestion. It may be objected that this state is not anaphylaxis in the strict sense of the word, but to authorities like Hutinel it is anaphylaxis, or else the biological method has been invented in vain. At all points we are driven back upon this theory. The changes in the baby's serum indicate that the causes of anaphylaxis are at least in being. It has been found that one symptom, vomiting, is controlled by giving highly sugared milk. On this point Concetti writes: "Some milks produce disorders of digestion simply because there is a deficiency of sugar; merely adding it artificially

quickly modifies the digestive function for the better."

The reason is that sugar, to be digested, must be combined with enzymes or catalases which split up the sugar molecule. These enzymes, it appears, are dutiful in their proportion, in relation to the baby's health, in relation to the sugar given, in some diseases the one means of stimulation that we have. The French physicians have invented two words to describe these diseases—*dehydration* and *hypoaalimentation*. They signify perfectly the withered tissues, the dry secretions of babies who cannot live on human milk. A moderate degree of hypoaalimentation and the effect of condensed milk are described by Pritchard in the following case.

CASE I. A male infant, aged two months, was brought to the Queen's Hospital, February 10, 1913, for continuous screaming. The weight at birth was not noted, but the baby was reported to have been of average size; the weight on being brought to the hospital was 10 pounds. So presumably the infant had increased in weight some 2 or 3 pounds in the two months, and therefore could not have been systematically starved. For some days past the infant had been constipated, and had passed a very small quantity of water. The mother's breasts were of normal size and appeared well developed, but milk could be expressed only with difficulty. I gave the mother instructions when she next came to see me, not to feed the infant for three hours before attending the hospital. In the meantime, feeling fairly confident from the symptoms that the infant was now being starved, whatever might have been the case at an earlier date, I told the mother to give the infant one teaspoonful of condensed milk and two tablespoonfuls of water after each breast feeding. Owing to a mistake on the part of the mother, it was not possible to give a test feed when the infant was brought to the hospital a week later, but in the interval the infant had gained 2 pounds $\frac{4}{5}$ ounces in weight, the largest increment I have ever seen registered in one week—in fact, no infant could possibly show such an increment unless it had been very seriously starved for some time previously.

The action of sugared milk in these cases is thus explained by Variot:

The modification of milk by sweetening it with saccharose (*hypersucrage*) is the cause. Condensed milk sugared, or ordinary milk sweetened and heated, has an immediate sedative effect more or less rapid on the most obstinate and inveterate cases of vomiting. By sweetened milk, we must understand a milk containing ten per cent. of saccharose. The substitution of ordinary milk, though sterilized, to this sweetened milk, brings back the vomiting at once; we had one failure in a baby with hypertrophy of the pylorus. Professor Gautier supposes that the casein forms a new compound with sugar; at all events the coagulum differs totally in appearance in the case of ordinary milk and sweetened milk.

I have seen two cases illustrating this rule. In one lactose and cane sugar were added to fresh country milk; in the other condensed milk and afterward a proprietary food were given.

CASE II. A girl, aged six months. In this case there was partial starvation, atrophy, and dehydration. The baby did not gain appreciably in weight, that is to say, in two months the scales showed an increase of a few ounces. At the end of the eighth month, it weighed three pounds more than at birth. The mother seeing that something was wrong, asked my advice. I suggested two feedings a day of fresh milk sweetened, instead of nursing. A bottle containing eleven ounces of diluted milk, to which ten per cent. cane sugar, and 0.5 per cent. lactose, was given twice daily. The result was very striking. The baby now weighs—six months later—twenty-two pounds, and seems in every respect healthy. I do not mean to imply that this increase was due to sugar alone, but the sugar gave a fillip to the child's powers which was lacking.

The second case was probably one of anaphylaxis.

The mother rightly described her milk as "poison" to her child.

CASE III. Vomiting, diarrhea, atrophy, extreme wasting, pallor, and cachexia. In spite of the uncontrollable vomiting, the family physician insisted on the mother nursing the child. When the child was evidently dying, the mother with the good sense that women often display without previous knowledge, administered condensed milk. The baby was able to retain it, and began to gain in strength and weight. When eight months old, condensed milk was given up and a proprietary food substituted. At this time, I was consulted, and having heard the history, I did not scruple to continue the regimen so happily found by the mother. At the fourteenth month, the baby weighed 23 pounds. Its weight was not taken, so far as I know, during the period of anaphylaxis and hypoolimentation.

I beg to assure the reader that I am not an advocate of condensed milk. But there is nothing to boast of in the attempt to sweep it away entirely; this feeling may be put down to a form of prudery. My view is that the braver choice is to use it when needed than to renounce it. Doctors should be taught to regard it with sober balance. If the baby cannot take Nature's good old road, it becomes a mere commonplace of medicine to find it another food. In connection with this subject, I mention the two cases; in both, the mother in the conventional spirit tried nursing her child, though there were many reasons against it, imposing a decision. These instances are not cited in defence of condensed milk nor in opposition to slumbering doctors; they are intended to drive home the truth that many women are quite unfit to give suck to their infants, and are unhappily constrained to it by visionary specialists. In these cases the mothers were sufferers; in one the ground malady was hyperthyroidism, in the other some unknown state that made her milk noxious.

Concerning babies, it may be said, constitution is tough, and dealing with indigestible food, produces toughness. In the mothers strong emotions and cross currents of illness were in tide against the baby; the mother's breast was alien, and there was perforce confusion in the child's system. Perhaps another child might have done well on this human food, but in the present case the crash came by thus avenging Nature—heredity helping. This indigestion, when it is caused by cow's milk, Pfaundler calls *heterodystrophy*. The dystrophy here was maternal, and was clear enough without antepenultimate words to describe it.

The chief novelties exposed to the reluctant eyes of specialists after a study of such cases, are the sedative effects of sugar in vomiting, and the newly opened view of the toxic quality of human milk, a view newly opened, though ancient. Condensed milk and sugared milk are not without efficacy; in many respects they doubtless imitate Nature faultily, but there are, as experience shows, a vast number of women who are advised to nurse their babies when milk of a different species is clearly needed. The family physician, who is usually wise, respects this frailty. The new specialist respects it not at all. Thus he crushes not the baby only, but the mother's feelings and sometimes happiness. The external authority on which the specialist's stand is taken is something like this:

Certain names have the power of rousing the highest degree of conscience in the mind of the adust scientist; among these names are the words, condensed milk. When these are mentioned, his mind is immediately filled with vivacious images of moral entertainment, his spirit becomes fresher and he prepares his whole machine for enjoyment, oiling the rusty bearings and giving the crazy wheels a spin with the most agreeable expectation of hearing an ethical lecture by some expert *unter dem Einfluss* of So and So at Chicago or New Haven. To the colossal prejudices of these dry men of routine there is an irresistible fascination about old saws. The extreme rarity, too, of good sense in many of their rules is an additional element of interest, while in the case of most of them the scanty information hitherto available with regard to condensed milk has perhaps tended to increase the fascination.

FILM PREPARATIONS OF CONDENSED MILKS.

In stained films the cellular content appears defective; whilst there is a striking fluctuation in the proportion of fat globules, and in the sediment sugar crystals predominate. I think I must have examined 500 samples, and if they truly represented the average brands of condensed milk, they were still quite far from the three per cent. of original milk fat required by experts—and required, who can doubt it, as a minimum. This view, whatever else may be said of it, represents the accepted opinion of science. (See Behre, *Zeitschrift f. d. Untersuchung der Nahrungs- und Genussmittel* 27, p. 571, 1914, and Mezger, *Milchwirtschaftl. Zentralblatt*, 42, Heft 16-20, 1913). The rarity of fat globules in the films suggests the desirableness of further laboratory study; in this way we may hope to find a practical formula. (See Levy, *Annales des falsifications*, 6, p. 450, 1913.) Laboratory study fulfills another definite purpose—that of calculating the loss of nutrition units in the dilutions. Cells with a polymorphous nucleus are also observed in the films. Of the nature of these there are two explanations. If they are pus cells, as many suppose, they illustrate the discrepancies of all such milks. If they are leucocytes, they are not nearly so numerous in the crystalline deposit as to give us a very high opinion of the original milk.

ANALYSIS OF CONDENSED MILKS.

On this point even the best authorities are misleading, unless we adopt a method of gauging the sum of the analyses. A single illustration will make this clear. A very high European authority has lately published a comparative analysis of a leading brand of condensed milk in German trade. According to this expert, the brand contains water 29.10 per cent.; protein, 12.70 per cent.; fat, 10 per cent.; lactose, 8 per cent.; cane sugar, 39 per cent.; salts, 1.20 per cent. On its face this is a good showing, and the proportion of fat is here somewhat higher than that given in the analysis of the same brand in the British and Canadian reports, which is 8.8 per cent., or only a fraction above the lowest standard. If this same brand is compared on this basis with whole milk, the case appears quite

different. As this writer proceeds to show, this same brand, if diluted two and one half times, has only the dietetic value of skimmed milk. The same authority compares it with a leading European brand of condensed milk, which has 11.03 per cent. of fat and but 25.40 per cent. water. Again, if we compare it with the best brands of full cream, fully sweetened condensed milk, we find that it has four per cent. less fat. Such differences point to inferiority of manufacture, possibly; though the question arises as to the grade of milk from which the American brand is made.

CONDENSED MILK AND INFANT FEEDING.

The rule adopted by present authorities is that condensed milk should be made from whole milk; an exact parallel to the fat contained in the original milk should be found in the condensed product. Again, milk which in dilution falls below 3.2 per cent. has to a great extent been condemned as an infant food. The fat ratio in the dilution is a test of the grade of the original milk.

Hence, if condensed milk at present used is manufactured in accordance with modern standards, it will make far greater progress than it does now. I have mentioned that the quantity of sugar should be reduced, but it should not be omitted. For it is observed that unsweetened condensed milks are thin and keep poorly. The primary object of the manufacturer should be to produce a milk which in dilution has the correct cell content and proportion of fat and sugar. This may also be expressed by saying that a "dose" of the condensed milk in dilution, and one litre in volume, should be the equivalent of a litre of whole milk in dietetic value. Such a condensed milk should not have more than two and a half parts of water added to it to accomplish the desired object. This problem has engaged the attention of European authorities and has been satisfactorily dealt with by Lloyd and Crato. The best American grades should be of this standard.

The best specimens of American manufacture, if made on this modern standard, will mark that quality and attribute of infant diet for which the medical profession stands; they will then, in my judgment, do duty both for human and cow's milk. We have the best authority for asserting that children can live and flourish exclusively on the best condensed milk. I need only cite a recent French writer, who fed a series of babies for two years on condensed milk alone. His results, which were admirable, were published in the *Bulletin* of the French Academy of Medicine, 1914, or only a few months ago. This is a very high recommendation. I could cite other authorities, who believe that the quantity of sugar should be put on the label and that the directions as to the dilutions should be sound and such as agree with medical advice. The formula of these dilutions should also be printed. The professional rule is rigid which demands that every professed remedy—whether food, or medicine strictly speaking—shall be published so that it may be submitted to experiment and analysis. The manufacturer does not precisely establish his claim to confidence by publishing only his version of the formula.

40 EAST FORTY-FIRST STREET.

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLV.—What is your experience with high frequency currents in the treatment of tumors of the bladder? (Closed.)

CLVI.—What is your experience in the treatment of pellagra? (Answers due not later than March 15th.)

CLVII.—How do you treat diarrhea? (Answers due not later than April 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best paper submitted in answer to Question CLIII was awarded to Dr. John I. Fanz, of Philadelphia, whose article appeared on page 253.

PRIZE QUESTION NO. CLIII.

THE VALUE OF CONDENSED MILK AS A SUBSTITUTE FOR THE MOTHER'S MILK.

Dr. Louis Fischer, of New York, states that:

The two elements in food most necessary for the physiological growth of the infant are fat and protein. Both of these elements are sadly lacking in condensed milk. In fact, the dilution of condensed milk with water, as ordinarily used, gives no more than one half to one third of the protein required for structural development. Approximately the same percentage of deficiency applies to the fat content of condensed milk. If one teaspoonful of condensed milk is added to fourteen parts of water, we have but 0.7 per cent. of protein, 0.6 per cent. of fat, and 3.5 per cent. of sugar.

	Condensed milk, 1 part; water, 14 parts.		Human milk—	
			Early milk.	After 4 months.
Fat	0.6	2.00	4.00	
Sugar	3.5	6.50	6.50	
Protein	0.7	1.25	1.75	

Presuming that instead of one teaspoonful of condensed milk we double the quantity, so that two teaspoonfuls are added to about fourteen parts of water, then our formula would be fat 1.2, sugar 7.5, protein 1.4.

We cannot compare the foods from the nutritional standpoint, because where we are dealing with human milk we supply a normal quantity of fat and protein and a high percentage of sugar. In the condensed milk we have a high sugar percentage and a deficient percentage of fat and protein. It therefore stands to reason that the blood building elements of the food are low, and consequently the glandular activity will be reduced. This can best be illustrated by studying microscopically the hard and dry round masses of scybalous stool. The dryness is partly due to the absence of fat in the intes-

tine, but it is equally important to recognize the deficiency of the glandular secretions in the intestine which lubricates the stool. The intestinal secretions stimulate peristalsis and aid in the expulsion of fecal matter.

No argument can place condensed milk in the same category as human milk, because human milk is a *live fluid* derived from the human body and contains *live factors*. It can compare in strength and nutrition therefore only with blood and lymph or another vital secretion. Any attempt to compare an evaporated milk derived from a cow which Nature originally intended for a calf, to a milk derived from a human being, must appear ridiculous, the more so when we remember that a large excess of sugar is added to the condensed milk to preserve it.

Deficiency of fat as found in condensed milk is usually manifested by a series of symptoms, one of the earliest of which is constipation; later there are head sweating and restlessness at night to such an extent that the rolling of the head causes baldness of the occiput. When these symptoms continue for several months, we can usually note structural weakness, such as epiphyseal swelling of the radius and ulna. In some cases a rachitic rosary can be felt on the side of the chest along the ribs. Such a rosary is commonly called "beaded ribs." The cranial bones are usually thin instead of hard and firm. They yield on the slightest pressure. This condition is commonly called "craniotabes." If such a child is permitted to stand, owing to the softness of the bones, the body weight causes them to curve. A marked curvature of the spine can usually be made out in children thus affected by faulty nutrition, resulting in a condition known as "rachitic cyphosis."

If the bony structure and the muscular structure suffer for the lack of proper nutrition, it must be evident that the bloodvessels, nerves, and all organs suffer equally. Many infants will therefore be late in speaking or late in walking because of the lack of proper nutrition. From the foregoing symptoms and changes brought about by this method of feeding, we must not be surprised at the ease with which such rachitic infants succumb to disease. The vulnerability of the rachitic infant to the infectious diseases is well known, hence the prognosis in an infectious disease is far worse when rickets is associated.

After what has been said of the baneful effects of condensed milk feeding, the question naturally arises, Shall this form of feeding be used at all? My answer is: As the protein content and also the fat content are exceedingly low, while the sugar is very high, such food may be used only as a *temporary expedient and as a substitute for a short time*. It is indicated in stomach abuse if very high fats or cream feedings have deranged the gastric function so that fat tolerance is limited.

In acute febrile processes we are sometimes at our wit's end to know what form of feeding to give. It is here that condensed milk will find its place, but I must repeat that the feeding must not be extended over a long period because of the danger to the human body. The palatability of this food renders it very agreeable to infants, and this is sometimes

looked upon as an argument in favor of continuing it.

Lastly, the food should be condemned because of the tendency to weight increase, which latter results from the excessive quantity of sugar. We must therefore not be misled to believe that weight increase is always physiological, because overfed babies need not necessarily be healthy babies. A gradual steady gain in weight of four ounces a week on a low fat of two or 2.5 per cent., with a protein content of two per cent., with five or six per cent. of sugar, will serve the purpose of nutrition and metabolism far better than the feeding of an excessive quantity of carbohydrate in the form of sugar or starch with a low fat and low protein, as found in condensed milk, even though the latter feeding gives a larger increase in weight.

I have known infants to gain from ten to twelve ounces a week on condensed milk, but the structure literally fell to pieces after several months of such feeding.

Dr. Adrian A. Landry, of Plaquemine, La., writes:

Condensed milk as a substitute for mother's milk in infant feeding has in my experience found a distinctly useful place. Practising medicine in the country among the poor, both white and colored, living on our large plantations where the keeping of cows is not allowed, in isolated settlements, lumber camps, etc., and even in town where our milk supply is at times inadequate, condensed milk fills a much felt want. When obtainable, cow's milk may be dangerous among this class of people on account of its uncertain quality, and the conditions under which it is handled and kept when ice is a luxury. Even when of a satisfactory standard as to quality and conditions of handling and keeping, the more or less complicated processes of modification are a handicap when simple dilution with plain water or cereal waters fails. It is fortunate that in this class of people we rarely encounter mothers unable to nurse their offspring, but still it does occur, and condensed milk obtainable in all country stores and easily kept clean and wholesome is a boon when we consider the dangers to which infants would be exposed when fed on raw cow's milk produced, handled, and kept under the most unfavorable conditions incident to poverty and ignorance.

Among the better class, where poverty and ignorance are not factors, we are at times forced to condensed milk. As a rule, although whole cow's milk raw, diluted with plain boiled water, barley water, or oatmeal gruel, and sugar, meets a majority of the feeding requirements, at times we have to contend with cases where, dilute or modify as you will, cow's milk does not agree, and we have to have recourse to condensed milk, either altogether or alternating it with an occasional modified cow's milk feeding.

Condensed milk is on the market in two forms; that to which cane sugar is added generally in large quantities, fifty per cent. or over, known to grocers as *condensed* milk, and that to which no sugar is added, known as *evaporated* milk, both sold in hermetically sealed cans. Condensed milk, on account of the large amount of sugar, is as a rule not as

suitable as evaporated milk. No matter in what way diluted, with plain water or cereal waters, the sugar percentage is always apparently too high, but the fact that infants and young children have a marked toleration for sugar is in their favor, enabling us to neglect the high sugar percentage.

In premature infants condensed milk is a valuable substitute for breast milk in the proportion of a half teaspoonful to one or one and a half ounce of boiled water. Barley water or oatmeal gruel is not used as a diluent on account of the weak digestive powers of the little subjects. The amount of condensed milk is increased carefully up to the second month, when a modified cow's milk as a rule can be used. In infants at term, when modified cow's milk does not agree, a few weeks' feeding with condensed milk will be found satisfactory. When good cow's milk and ice are obtainable, we should always substitute cow's milk, suitably diluted or modified when possible, as children thrive better on cow's milk as a rule, and are more resistant to infections and diseases incident to childhood, owing to the beneficial and protective action of the natural ferments, vitamins, and hormones present in uncooked cow's milk, necessarily absent in condensed milk. The change is made gradually, one cow's milk feeding say once a day, then twice, morning and afternoon, then alternately, and so on until the condensed milk is dispensed with altogether.

When cow's milk is not obtainable or does not agree, I do not hesitate to continue the condensed milk, using at the third month barley water (barley flour one half ounce to one pint of water) as a diluent. The nutritive elements in this barley water add to the fat and protein contents of the mixture, thereby decreasing proportionately the sugar percentage. As a rule this high sugar percentage is not objectionable. Should it prove so, we have the evaporated milk containing no added sugar. This for a child three months old is diluted in five to six parts of barley water, adding sugar of milk, giving us a higher protein and fat percentage than the condensed milk mixture. The proportion of evaporated milk is gradually increased as the child grows older. At the fifth or sixth month, it is my invariable custom to add orange juice to the diet of these condensed and evaporated milk fed babies as an anti-scorbutic.

In my own family I successfully raised by first born, a boy, on a condensed milk diet with orange juice at the sixth month, without any mishap, and at twelve months he compared most favorably with any child of his age. This personal experience convinced me of the value of condensed milk in emergencies.

In convalescent cases of bowel trouble, acute and chronic, we find condensed milk again valuable in the change of diet from barley water, cereal gruels, albumin water, etc., to breast milk or modified cow's milk. In the weakened state of the stomach and intestinal digestion incident to these affections, in summer principally, an abrupt change to a milk diet is dangerous. It is my practice to add condensed milk to the cereal waters in small quantities at first, say one half a teaspoonful to one and a half ounce at every other feeding, cautiously increasing the quantity until a return to ordinary feeding is possible.

In conclusion, I do not wish this to be understood as a plea for condensed milk feeding as a routine, but as an emergency diet when cow's milk cannot be procured or so modified as to agree; as such it has a proper place in the armamentarium of the physician living in country districts and towns where access to safe and certified milk and milk depots and laboratories is out of the question.

Dr. Augustus Ravogli, of Cincinnati, observes:

Condensed milk has not to be relied upon as a substitute for mother's milk, and should not be used as such. It is prepared by the evaporation of the milk reduced to one third or one fourth of its volume. If it is prepared from the whole milk, then it has sufficient fatty elements, but when prepared from skimmed milk it lacks its fat. In order to preserve the condensed milk, cane sugar one quarter pound is added to a gallon of milk or glucose.

The milk in order to be condensed has been exposed to a high temperature in its preparation, and so it has been rendered sterile. This makes it keep for a few days. In order to give it to the infant, it has to be diluted in seven or eight parts of water, and if fresh cream can be obtained, a little of it should be added with some sugar of milk. The formula of Keating is preserved milk one ounce, boiled water eight ounces, fresh cream one ounce, sugar of milk three drams, which represents the nutritious elements of the mother's milk.

The fault which is found with the canned condensed milk is too much cane sugar and too small amount of fat. When diluted with six parts of water, it yields one part of fat, protein 1.5, and eight parts sugar. The sugar often may cause diarrhea and indigestion. Holt is rather against the use of condensed milk as an exclusive infant food.

In the experience of the writer, children nourished with condensed milk have looked not at all inferior to those nourished with fresh milk, and sometimes better than those taking the breast of the mother. In some cases every kind of fresh milk diluted with barley decoction, with lime water, has caused vomiting and diarrhea, while these disturbances have ceased after giving diluted condensed milk. In children suffering with infantile eczema, when too fat, overnourished, a change of diet is necessary. In these cases the use of condensed milk, diluted in eight or ten parts of boiled water, avoiding the increase of fat, has been well tolerated, has given satisfactory nourishment, and under local applications the skin eruption has greatly improved and recovery has been obtained. If condensed milk is to be used exclusively as infant food, it is advisable to add a few teaspoonfuls of meat, or mutton broth, in order to supply protein, which is lacking in the condensed milk.

In conclusion, it may be said that condensed milk prepared as stated above, may be used as a substitute for mother's milk. Infants fed exclusively with preserved milk, have not shown signs of poor nutrition. In some cases children suffering with indigestion from fresh milk, have much better tolerated the condensed milk. In cases where a change of diet is necessary, often good results are obtained.

(To be concluded.)

HEMADENOLOGY: A NEW SPECIALTY

THE INTERNAL SECRETIONS—THEIR FUNCTIONS AND BEARING ON DISEASE AND THERAPEUTICS

BY CHARLES E. DE M. SAJOUS, M. D., LL. D.,
Philadelphia.THE SCOPE OF THE INTERNAL SECRETIONS IN
MEDICINE.

Many believe that the addition of several organs, the ductless glands, to those such as the heart, lungs, liver, etc., which have been studied for centuries, will necessarily transform present conceptions of disease and therapeutics. Be this as it may, the fact remains that these organs and their products, the internal secretions, have assumed so prominent a role in medicine, and a knowledge of their influence upon morbid processes has become so necessary to professional success, that it was deemed advantageous to the readers of the NEW YORK MEDICAL JOURNAL to publish a series of articles presenting those features of the subject most likely to furnish material aid in practice.

The field of the internal secretions may now almost be regarded as all embracing so far as the clinician is concerned. Swale Vincent (1), referring to views published in 1903, writes: "Sajous (2) apparently postulates a relationship between the various ductless glands, whose functions, according to this writer, dominate most of the bodily activities, normal and pathological." We need but survey cursorily the functions of these organs even as they are interpreted by most conservative authorities to realize that this estimate had been warranted from the first. Whether it be the thyroid, the adrenals, the pituitary, or any other of the ductless glands, we witness phenomena which affect the body at large. That general nutrition is influenced is shown, for example, by the obesity of hypothyroidism, hypopituitarism, and hyperadrenalism; that the entire skeleton, vascular system, and musculature are subject to the influence of the ductless glands is also illustrated by acromegaly and gigantism, both of pituitary origin. Cretinism and Graves's disease clearly illustrate the influence of the thyroid on the general organism and particularly in the latter disease, on the nervous system; Addison's disease as plainly denotes, through its pathology and symptomatology, another generalized deterioration due to disease of the adrenals; eunuchism sufficiently emphasizes the participation of many organs in the morbid process evoked through removal of the testes, etc. Gout, atheroma, glycosuria, and many other disorders are now known to be closely associated, in a large proportion of cases, with disturbances of the internal secretions.

The relations, pathological and clinical, between the pituitary, thyroid, adrenals, and pancreas, on the one hand, and vulnerability to infection on the other, have been sustained by so many facts that they can no longer be denied. This obviously links these ductless glands with various infections. Conversely, several undoubted internal secretions have been shown to possess antitoxic properties. These properties, especially in the case of the thyroid, para-

thyroids, pancreas, and adrenals, show marked kinship with the defensive functions of the organism at large, digestive ferments, acting as bactericidal and antitoxic agents in the blood and tissue cells, supplementing phagocytic leucocytes which also act as carriers of the defensive agents to the tissues. This view, advanced by the writer twelve years ago, has since been sustained by others, and, so far as the digestive ferments and their carriers are concerned, by Abderhalden's investigations. Twenty-three centuries ago, Hippocrates (3) taught that "it is to the efforts of Nature that the attentive and able physician looks for guidance." The internal secretions present all the attributes which Nature demands to carry on its defensive role, while conforming in their mode of action with those antibodies which hosts of immunologists, through painstaking efforts, have identified as the active factors in the protection of the body against disease.

Thus interpreted, the internal secretions may well be deemed virtually all embracing in their influence. Circulating as they do throughout the entire organism, they participate more or less actively in all functions, normal and morbid. To overlook this fact in practice, nowadays, is to inhibit correspondingly one's power to relieve suffering.

THE TERM "HEMADENOLOGY."

In announcing the creation of a clinic on the ductless glands at the Charity Hospital of Philadelphia, this JOURNAL referred editorially to the fact that I had introduced the term "hemadenology" to identify a new specialty which would include all the diseases of the ductless glands *per se*, and those disorders clearly traceable to lesions of these organs. A correspondent characterized it as incorrect, stating that the etymology I had given, viz., *αἷμα*, blood *ἀδην*, gland *λόγος*, discourse, "refers to a discourse on the blood glands, whatever that may be, but not to the ductless glands." But our critic had overlooked the fact that the ductless glands are "blood glands," a term applied by Johannes Müller ("*Blutdrüsen*" or "*Blutgefäßdrüsen*") to the thyroid, adrenals, thymus, and spleen. Indeed, no term is so closely associated with the initial work on the internal secretions or more clearly indicates their true role as hormones—chemical messengers transmitted by the blood. As early as 1855, Claude Bernard (4) wrote: "In animals the glycogenic secretion is an internal secretion because it is poured into the blood." Vulpian, in 1856, showed that the adrenal veins contained the adrenal chromogen, subsequently identified by Cybulski (1895) as the secretion of the adrenals. Brown-Séquard also held that the ductless glands supplied their secretion to the blood. The secretion of the thyroid, though transmitted by way of the lymphatics, soon reaches the subclavian veins. Secretin, found in the veins of the jejunum

by Wertheimer, was traced to the systemic arterial blood by Enriquez and Hallion. The pancreatic hormone has also been found in blood from the pancreas; what we know of the internal secretions of the thymus, ovaries, testes, kidneys, and other ductless glands indicates that they all contribute, either directly or indirectly, their product to the blood. Starling only recently referred to the hormones as being "discharged at frequent intervals into the blood stream."

The term "hemadenology" fittingly denotes, therefore, the sum total of our knowledge on the ductless glands. Precisely as is the case with ophthalmology, laryngology, and other specialties, it connotes not only the disorders of the glands proper, but also the influence of these disorders upon the organism at large. We shall see presently, however, that owing to the distribution of the hormones to all parts, hemadenology is subject to limitations.

HEMADENOLOGY AS A SPECIALTY.

Gradually as the functions of the internal secretions are being investigated, their influence, beneficial and morbid, on diseases other than those of the ductless glands themselves is being increasingly recognized. All such diseases might, therefore, be regarded as belonging to the field of hemadenology. Strictly speaking, however, the latter term, interpreted as designating a specialty, should be reserved for disorders of the glands *per se*, or in which these organs play the preponderating etiological role. While the scope of hemadenology, thus restricted, would seem to include but a few relatively uncommon diseases, in reality it will embrace not only a very broad field, but one fraught with incalculable possibilities for good. An enumeration of the more salient disorders it would include will probably make this clear.

What are termed "backward children" aggregate, judging from the proportion shown by the public schools of Philadelphia, 318,000 in the public schools of the United States. As this does not include children who are too young to attend school, an estimate of one million of backward children of all ages in the whole country, would be nearer the true figure. These children, usually deemed merely deficient in capacity of spontaneous attention and memory and believed to show no evidences of degeneracy, possess in many instances stigmata which point directly to impairment, through heredity or local lesions, of the ductless glands, and due in many instances to one or more "children's diseases." We may witness one or more signs of hypothyroidism or larval myxedema, with mental torpor, hypothermia, and perhaps a little pallor as only signs; or close examination may elicit a mild form of cretinism, with slightly stunted growth, a pug nose, thick lips, a somewhat harsh skin—children who often show decayed teeth and a predilection for tonsillitis.

A lower grade still of these (often redeemable) degenerates show defects of speech and ideation and deficient capacity of spontaneous attention. Left untreated, such subjects usually drift to the category of "idiots," a blind devotion to tradition having associated these unfortunates with "heredity"—a fit companion for "idiosyncrasy" as a cloak for ignorance. Hemadenology will do much to tear asunder the

clouds which hover over this great question. Indeed, through the efforts of eugenicists to protect future generations, the unfortunates of our own generation are increasingly exposed to injustice. This will cease when the prevailing tendency to overlook the flood of light which modern contributions to our knowledge concerning the ductless glands have thrown upon heredity will inspire the labors of these well meaning scientists.

In contrast with these defectives are the cases of infantilism, characterized by the persistence of the physical and mental characteristics of childhood, but without idiocy or dwarfism. The miniature men of the Lorain type and the defectives of the Mongolian type with their slanting eyes, bulging foreheads, are examples of this class, due in most instances to defects in the upbuilding of the organism, a process in which all the ductless glands take part. Still another, though rarer, type is the infantilism of pituitary origin—obesity with feminism in the distribution of fat, the nates, thighs, and breasts especially, but with deficient development of the sexual organs, a moon face, and weak mentality.

Crime presents aspects which also belong to the field of the hemadenologist. All the types described above are usually docile, the exceptions being some cases of the pituitary adiposogenital type, and show but little if any predilection for vice. Among those recorded as imbeciles, who show deficient intelligence and loquaciousness, abnormally good memory, untruthfulness, arrogance, and maliciousness, may sometimes be discerned types, which owing to the landmarks of defective development resulting from imperfect balance of ductless gland activities, point to links between the latter and crime. To seek these associations, restore normal equipoise in the production of hormones, thus insuring normal metabolism in all tissues, particularly the osseous and central nervous systems when it is still time, offers broad avenues of hope for the redemption of some of these unfortunates from the drifts of iniquity.

Insanity likewise claims the attention of the hemadenologist. The psychoses of exophthalmic goitre and myxedema, and the idiocy of microcephaly due to inadequacy or absence of the adrenals, are familiar examples. Dementia præcox, which is stated to initiate twenty-five per cent. of the cases of insanity harbored in our asylums, is increasingly being shown to be closely related to perverted action of the same glands, various types of the disease being represented by a corresponding number of forms of abnormal glandular action. Such being the case, we are brought to realize the many directions in which abnormal activity of the ductless glands may affect mentality. Beside the enfeeblement of the mind characterized by unequal weakening of the faculties, emotion, judgment, self control, etc., we witness impulsive actions, flightiness, catalepsy, automatic obedience, verberation, mutism, delusions, hallucinations, etc. The field is thus prolific in its opportunities for the elucidation of many of the complex problems with which psychiatrists are confronted in respect to the genesis of psychoses.

Obesity in all its forms normally falls within the scope of hemadenology. Beside the familiar varieties due to overuse of carbohydrates, defective oxi-

dation, etc., there are types which, as is well known, are due to deficient thyroid activity, which entails from my viewpoint, impaired activity of all other ductless glands. In children we may have also the *adipositas cerebialis* of Fröhlich, in which general obesity occurs with defective development of the sexual organs and impaired intelligence—due to deficient pituitary activity. Closely allied genetically with these cases, are those showing the *adiposogenital syndrome* of Launois, very similar to Fröhlich's, but without impairment of intelligence. The *adipositis dolorosa* of Dercum, in which there is obesity, general or localized in areas, with pain, spontaneous or paroxysmal, is also ascribed to impaired activity of certain ductless glands. Still another type, symmetrical lipomatosis, is characterized by the presence of masses of fat, often tender or the seat of spontaneous pain, symmetrically in the axillæ, groin, or other regions, but oftenest about the neck. Finally, the obesity of pineal deficiency may be mentioned as another example of the close relationship between the ductless glands and obesity.

Falling to the lot of the hemadenologist also are the abnormalities of growth, several of which, even in individuals in apparent health, are manifestations, active, latent, or extinct, of some morbid process. In acromegaly for example, we may have general enlargement of the body, especially of the extremities and face; the lips, nose, and chin are more or less prominent and there is general increase of massiveness of the frame. Individuals presenting such a type are not uncommon; in these, as well as in certain very tall subjects, temporary lesions of the pituitary, awakened by some acute febrile process, may have caused the acromegalic process to proceed far enough to provoke the appearance of its most salient phenomena—all incapable of retrogression, after the causative morbid process in the pituitary proper has disappeared.

Resembling such cases at times are those of adrenal tumor, some of which cause premature development so marked in rare instances that a child of eight years may attain the size of an adult. The *adipositas cerebialis* of Fröhlich and the *adiposogenital syndrome* of Launois also suggestive of acromegaly in some cases, are deemed extremely rare because the fully developed morbid process is alone taken as standard. Here and there, however, the trained eye of the hemadenologist may discern the stigmata of these disorders, and oppose, through compensative, regulative or inhibitive measures, their evil trend.

Stunted growth as clearly belongs to the domain of the hemadenologist. This may follow, also irrespective of any other abnormal effect, the infections of childhood, especially where the thyroid, thymus, and adrenals had been the seat of lesions. In the complicated types there is, beside the dwarfism of cretinism and its congener, Mongolian and Lorain infantilism, the victim of achondroplasia, of fetal rickets, whose lifelong mortification is intensified by the fact that unlike that of the other types, his mind is as alert as that of the normal individual. His large head, saddle nose, short and bowed legs, prominent abdomen, and marked lordosis, bespeak little indeed in favor of a medical

science which cannot check the development of such deformities in their incipency.

Myxedema, cretinism, and other classic disorders of the various ductless glands obviously belong to the field of the hemadenologist. It should be borne in mind, however, that in their larval or mild forms they constitute in many instances, the so called rebellious cases met with in general practice. The sufferer of larval hypothyroidism, for example, may show little else than occipital or interscapular pain and cold extremities and yet resist all the anti-rheumatic or antineuralgic measures that a century may have suggested. Unrecognized, such patients sometimes contribute to their physician's diagnostic acumen by becoming frank cases of myxedema—when organotherapy arrests both the latter and the rheumatism. Lying behind tetany, paralysis agitans, and osseous disorders are, it is believed, lesions of the parathyroid glands—which thus become, as does the thyroid, elucidative factors in obscure though relatively commonplace disorders.

Much the same remarks apply to larval Addison's disease. While more or less bronzing characterizes the latter, we often meet in pale children, neurasthenic adults, and premature seniles, the typical signs of this condition, asthenia, sensitiveness to cold, cold extremities, hypotension, weak cardiac action and pulse, anorexia, anemia, constipation, etc., but without bronzing. Acute febrile diseases, pneumonia, diphtheria, typhoid fever, etc., may bring on a similar state by exhausting the adrenals, the patient dying after a period of weak heart, low blood pressure, asthenia, a tendency to fainting, prostration, etc.—an issue which a few timely doses of adrenaline in saline solution would have prevented. Excessive activity of the adrenals is another cause of death in children seldom recognized. Here the work of the hemadenologist will become elucidative and life saving.

Goitre and exophthalmic goitre, the bulk, as it were, of the cases witnessed by the hemadenologist, need his special intervention, to eliminate at the earliest moment, that of the surgeon. While in no way discrediting the value of operative procedures in appropriate cases, my own experience confirms that of Leonard Williams (5) when, in condemning promiscuous resort to the knife, he writes: "The truth is, these operative procedures in Graves's disease represent the heroic application of loose conclusions from insufficient data." This applies also to many cases of ordinary goitre. Many patients subjected to operation could have been cured by medical treatment, thus preserving for them a useful organ. We must not lose sight of the fact, however, that much work remains to be done to establish the precise limitations between operable and inoperable cases—a line or research which the hemadenologist should carry to an early termination.

The thymus in various ways claims the attention of the hemadenologist. Its temporary existence associated it with development and particularly with that of the brain and osseous system. Idiocy, thymic asphyxia, and status lymphaticus are doubtless but a few of the disorders the thymus may awaken. Adenoids, enlarged tonsils, and rickets

are kindred conditions which greater knowledge concerning the functions of the thymus will tend greatly to elucidate. Rickets and stunted growth belong to the same category.

The reproductive organs present features which distinctly belong to the domain of the hemadenologist. What knowledge of the functions of the internal secretions of the testes, ovaries, and corpora lutea has already been garnered, has contributed much to our therapeutic resources in conditions which formerly found us relatively powerless. The observations of Brown-Séquard to the effect that the energy of the nerve centres and cord is stimulated and that the individual is endowed with physical, moral, and intellectual characteristics of sex by means of orchitic injections, denote a wide field of usefulness, beside the treatment of sexual impotence. Menopause, physiological and post-operative, amenorrhea, and kindred disorders of the female studied adequately from this new viewpoint cannot but prove fruitful.

Hemadenology may thus claim a right to exist as a specialty. Its field is greater in its scope than some which have earned well merited recognition. Its influence on the improvement of the race through the light it will shed upon the pathology of the unfit, mental and physical, cannot but prove a blessing. If to this we add the many disorders it will serve to elucidate through collective effort on the part of the host of investigators it is bound to enlist, in addition to those who have already contributed so much to our knowledge, the day may come when the inauguration of hemadenology may be considered as having marked a new epoch in medicine.

A general survey of what hemadenology has to offer in the present state of our knowledge will be presented in forthcoming articles. Their purpose being to add to available diagnostic and therapeutic resources, the clinical signs or stigmata evoked through defective activity of the ductless glands and organotherapy, or the use of these organs in therapeutics will constitute a first series of articles, the second series being reserved for the diseases of the glands *per se*. In the light of modern thought empiricism is unthinkable. The functions of each organ will, therefore, be as closely analyzed as prevailing knowledge will permit in order to account for the morbid signs witnessed and the manner in which the glandular agents produce their beneficial effects.

The functions and uses of each structure having thus been reviewed, there will have been afforded a sound foundation for a study, in a third series of articles, of the therapeutic use of various organic products in combination. There can be no comparison between this method of employing organic substances, first practised by Gilbert and Carnot, of Paris, and polypharmacy, since hormones derived from the various ductless glands are more or less constantly circulating throughout the entire organism in perfect chemical harmony.

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(To be continued.)

Therapeutic Notes.

Treatment of Cystocele.—W. T. Pride, in the *Medical Review* for March, 1914, lays stress on cystocele as a frequently unsuspected cause of vague symptoms of general discomfort in women. Even when sensations of dragging in the pelvic cavity and of distention in the vulvovaginal orifice exist, and are accompanied by impairment of the function of urination, cystocele is not uncommonly overlooked. As for the correction of the condition, the author has found the following procedure, carried out by him in the last two years, far more satisfactory than any previously tried: The anterior vaginal wall is first exposed, the cervix drawn down, and the anterior vaginal wall split with scissors from the cervix to within one half inch of the external urinary meatus. The entire thickness of the vaginal wall must be cut through, in order to expose the vesical layer. The vaginal tissues are then dissected back on either side by means of a gauze sponge, until the lateral true ligaments of the bladder are encountered. Sutures of No. 2 chromic gut are now inserted into the ligament of one side as far down as practicable and then carried across to the other ligament at corresponding points. Three or four such sutures should be introduced in succession, at intervals of about half an inch. Finally, the sutures are tied, in the order of their insertion. A perfect swing is thus formed for the bladder, which is supported from the pelvic wall, and by ligaments that will not yield to the same extent as the vaginal wall. No contraction of the introitus is caused. Removal of any excess of tissue in the flaps of vaginal wall is not required; these flaps are merely stitched together with No. 1 catgut, and the redundant tissues promptly disappear thereafter.

The Choice of Antiseptics.—Alfred Johnson, in the *Prescriber* for November, 1914, brings out the fact that the function of a useful surgical antiseptic is not merely to destroy the organisms that attack living tissue, but simultaneously to preserve as far as possible the resisting and defensive action of the tissues themselves. Johnson has established for various agents what he terms the surgical antiseptic index, which takes into account not only the actual bactericidal power of the drug, but also its action in coagulating albumin—the latter action being one of the main factors in the injury of the body tissues by antiseptics. Mercuriopotassic iodide and mercury biniodide, according to his observations, stand high as effective surgical antiseptics, a one in 1,000,000 solution being free of coagulating action on albumin, though inhibiting the growth of most microorganisms, and at the same time exerting practically no direct toxic action on the protoplasm of the body cells. In a series of experiments conducted in cases of diabetes with gangrenous ulcers, where resistance of the tissues was at its lowest, the best results were obtained locally with antiseptics selected according to the author's plan. Dressings of an isotonic solution of sodium citrate containing one part in 50,000 of mercury biniodide proved among the most satisfactory of all. Some of the commonly used antiseptics, both of the dry and moist varieties, had produced obviously harmful effects in a case belonging to the series mentioned.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal
and The Medical News.*A Weekly Review of Medicine.*

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Address all communications to

A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,

66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transpor-
tation through the mail as second class matter.

Cable Address: Medjour, New York.

NEW YORK, SATURDAY, FEBRUARY 20, 1915.

THE NEW SPECIALTY IN MEDICINE.

On account of the high degree of specialization which has already come about in medicine the proposal to establish, or rather to emphasize still another specialty will at first possibly arouse some apprehension. When the profession, however, come to a full realization of the wide reaching importance of a study of the ductless glands, we are confident that they will admit that here we have a field quite broad enough, and rich enough in possibilities for good to warrant the special attention and liberal amount of space we purpose to devote to it.

In order to place before our readers the latest authentic information regarding the progress being made in this field, the NEW YORK MEDICAL JOURNAL inaugurates in this issue a new department, from the pen of Dr. Charles E. de M. Sajous, the acknowledged American pioneer and authority in this line of investigation. This series of articles will appear exclusively in the JOURNAL; it will be devoted solely to the study of the functions of the ductless glands and the internal secretions and their bearings on disease and therapeutics. It is only of late years that we have come to any proper appreciation of the important part which the internal secretions play in health and disease. It is expected that by devoting adequate study to this department of medicine the physician will be enabled materially to increase his efficiency as a conservator of the health and sanity of his patients.

While the subject will be treated in a scientific spirit, its application in diagnosis and in the practice of medicine will be brought prominently forward, since it is for the practising physician rather than for the laboratory expert that these articles are intended. There are a number and variety of conditions which can be understood and properly treated only after full comprehension of the endocrinous glands.

VISION AND WAR.

Progress in the development of optical instruments has been almost as rapid and nearly as much a factor in the conquest of distance as propulsion mechanisms. With the naked eye the range of vision is very limited indeed—especially when compared with that of the aided eye. When to the vision of the aided eye are added the mathematical computations in the location of distant objects, then the range of vision is equal to the range of expulsive instruments. It is in the operation of large ordnance pieces that the aided eye and the mathematical aids are factors in the accuracy of fire. The accuracy of the aim and the consequent negotiation of the object are not dependent upon the acuteness of vision of the operators, but upon the range calculations of persons not directly connected with the operation of the ordnance. It would seem that the large ordnance pieces should determine the outcome of combats, that the efficiency of the individual soldier would be of comparatively little significance, and that there would be no need for the great masses of men usually engaged in war.

In practice, however, it is still the soldier who is the unit of the army in the field, and his rifle is the chief offensive and defensive weapon. His usefulness depends almost entirely upon his vision and the ability to interpret visual percepts. Were visual acuity alone of importance, the visual index of a body of men would be the index of their efficiency as well as the index of the results. The visual standard of 20/20 is more a minimum than a maximum requirement, hence the rejection of recruits who fall much below this standard. For a given distance a target can be seen with even 20/70 vision, although it will not be as sharply defined as to those having 20/20 vision. When to the standard eye the disc is blurred, to the abnormal it will have fused with the landscape.

In the field, however, objects are neither so fixed nor so sharply defined as the targets in the rifle range, and while acuity of vision is important, there are many other conditions which affect the accuracy of fire. Chief among these are the interpretations of visual perceptions—and these are almost entirely matters of observation, judgment, and general ex-

perience. One with experience in the field is of more value with respect to accuracy of aim than one with far better vision but less experience. The aboriginal races are credited with better vision, although it is only a matter of interpreting what they see. Rifle practice, especially that gained in the field, is especially valuable because it teaches to interpret visual percepts properly, teaches distance, teaches to correct for such conditions as the wind, the speed of moving objects, etc.; otherwise with good vision training would be a waste.

In any event, it is better for the soldier to have the required vision without the aid of glasses, otherwise accidents to the lenses would mean disability of the individual, and disorganization of the military body. With officers it matters little whether vision is corrected with lenses, or whether vision is below the standard, since they are directors of combat, rather than combatants. It would be interesting to learn what the effect of a large proportion of visual defect, particularly myopia, among certain European people has upon the efficiency of the soldier with respect to accuracy of aim; future military requirements could be corrected accordingly.

RECRUITING IN SCOTLAND.

The physical examination of large numbers of what may be called average men possesses interest to physicians. In our issue for January 23d, Dr. Charles B. Slade gave the results of such an examination of the employees of the New York department of health. In the *Glasgow Medical Journal* for January, 1915, Dr. John Fergus tells of the examination of recruits for the new British army to the number of about 3,250. He thinks that about twenty-five per cent. in all were rejected, but he has statistics concerning the causes in only 348, and these he lists: Defective eyesight, 95; defective height, 57; defective weight, 33; defective chest measure, 36; inefficient teeth, 37; varicose veins, 15; varicocele, 6; cardiac disease, 11; hernia, 10; deformities and amputations, 9; cutaneous affections, 6; orchitis or enlarged testicle, 5; otorrhea, 3; deafness without otorrhea, one; general malnutrition, 3; disease of lungs (active), 2; active disease of glands, one; piles, one; weakness of mind, one; yielding abdominal operation scar, one; partial ankylosis, one; acute venereal disease, one; unclassified (papers only marked "unfit"), 12; total, 348.

Recruits were first examined as to eyes and teeth; the examination for vision was not stringent in the case of former soldiers, especially of those who might be used as instructors. As to teeth, a "sufficiency of opposing molars" was exacted. Weight, height, and measurements were then taken and a careful search was made for hernia, varix, varico-

cele, piles, fistula, skin disease, parasites, amputations, and deformities—including flatfoot and hammertoe. General intelligence was deduced in part from the answers given concerning past history and previous illnesses. Deafness was noted, if present, during this questioning. The greatest number of rejections were for defective vision, which barred out many men of sedentary occupation, but of considerable intelligence; the country men had the best eyes. Deficient height, the next most frequent cause of rejection, caused the loss of many men obviously well fitted for soldiering, beside giving rise to great indignation on the part of those rejected. Poor teeth as a cause of rejection also caused astonishment and ill humor among the candidates. Cases of undescended testicle and of some other genital abnormalities were refused for the curious reason that the victims are very liable to become, in the barracks, the butt of normally provided soldiers.

PREMATURE CONCLUSIONS.

Medicine suffers much from inadequate investigation and premature conclusions, and the investigator, so far as his permanent fame is concerned, suffers proportionately.

Generalizations from studies carried out on animals must be taken with reserve, but experiments in which man himself is the subject are especially liable to misinterpretation. This is particularly true when studies are carried out with the conscious concurrence and understanding of those experimented upon. Examples of premature conclusions and of medical treatment based on those conclusions are all too familiar.

In the realm of hygiene, in recent years, we have had warring conclusions, very positive on both sides of the question, as to diet. There has been affirmation that a minimum protein intake is best for the body, and there has been equally vigorous contention that the average man is much better for a higher percentage of protein in his daily diet. Conclusions by the former investigators show that soldiers, athletes, and professional men, as a rule, do their best work with little protein; but that was during the comparatively brief time of the experiment. We know that the soldiers, at least, were glad to slip back into a more liberal intake of protein, and no one investigated their condition in the succeeding weeks, nor do we know the postexperimental habits of the other subjects of study, nor was any investigation made of their bodily powers.

We have had, likewise, positive preachments in favor of a very strict vegetarian diet and equally vigorous advocacy of mixed regimen. Ben Franklin and Herbert Spencer, both men of high intelligence, became vegetarians, one for two years and the other

for six months; both felt temporary benefit, but both returned to the use of flesh, the former without any feeling of regret and the latter because he felt that his working powers suffered from the vegetable diet. He even went to the trouble to rewrite the book he had composed during his vegetarian experiment, for he believed it was lacking in the mental force he had exhibited in previous works.

May not our advocate of the minimum use of protein be also misled by a similar hasty generalization—from the fact that their experiments covered but a comparatively small period of time and did not take into account that the human body is usually benefited by change? Will the effect of low protein diet last, or will there be a like beneficial effect for a time on returning to the use of more abundant protein? It certainly has not been proved that the minimum protein diet has continuous good effect.

No better example of deliberateness in scientific investigation and conclusion can be given than that of William Harvey. For ten years he carried out his elaborate and painstaking studies, and it was only upon the earnest entreaties of his most distinguished medical friends that he was finally persuaded to publish his discovery. As his biographer notes, "a discoverer who employs so long an interval to give opportunity for criticism, and to deal with objections, must indeed be wedded to truth."

In modern times the pages of the medical journal afford a medium for exchange of thoughts and methods of study comparable to the vocal discussions which Harvey invited from his contemporaries, but worldwide instead of merely colloquial in extent. Nevertheless, it would be well if most scientific investigations were carried on longer and with more minute pains; and it would be better if conclusions were weighed with the utmost care before being positively set forward as a guide to those who put theory into practice. Because so much of our "science" is so contradictory and evanescent, the physician, while keeping in touch with the progress of knowledge, will do well to be conservative in accepting the "latest discoveries" before they are thoroughly tested. In medical practice, at least, it is just as well to keep a little behind the crest of the wave of science, for he who rides that crest is liable to many falls and to much chagrin.

MALARIA AND THE CONSERVATION OF WATER.

The statement that a slight change in one way may cause many changes in other directions is indeed a platitude, yet its immediate application may be new. One of the most important questions of the times is the conservation of natural resources, and of these coal stands preeminent; its substitute

as a power giver is to be the running waters of the country. At first glance this might appear to be a matter concerning the economist alone, but its effect upon the health of communities in certain parts of the country is worth consideration by the physician and the hygienist. Its importance has been pointed out in an interesting way by a recent article by Doctor Carter (*Public Health Reports*, December 25, 1914).

The direct relationship between water, mosquitoes, and malaria is a well recognized one, and for that reason a study of the effects of the damming of waterways is advantageous. The question which demands an answer is, whether or not a given locality will become more or less healthful, or remain unaffected, when the flow of the water is disturbed. At first glance it might appear that if a greater quantity of water is impounded, there will be greater opportunities for the breeding of mosquitoes. This is not the case, however, as it is not in deep, but in shallow water that eggs are deposited. The consequence is that places which were malarial may be rendered healthful if there is enough water to fill up the shallow areas and give an opportunity for action to the many factors that tend to keep down the propagation of the mosquito.

One of the deterrent influences is the variation in the rise and fall of the pond according to whether or not the water is being drawn off for commercial purposes. The rise during the night in one instance, during low water season, varied from nine to twelve inches to as much as two feet. These changes of elevation within a shorter time than the cycle of development of the mosquito, interfere with breeding. Many of the larvæ are left stranded, others are more exposed to destruction by fish. Likewise a pond is more easily affected by winds, and in this way fewer larvæ survive.

As a result of this investigation the conclusion drawn is, that such ponds, the older they become, the less and less suitable they will be for the breeding of mosquitoes. Instead of being a menace to the neighborhood, therefore, the indications are that the retention of water for economic uses will tend to decrease the amount of malaria in the immediate vicinity.

SURGERY DURING A NAVAL ACTION.

Fleet Surgeon Walter K. Hopkins (*Journal of the Royal Naval Medical Service*, I, 1; *British Medical Journal*, Jan. 30, 1915) tells of what happened on board H. M. S. *Fearless* off Heligoland on August 28, 1914. Concerning the treatment of wounds received during the action, Mr. Hopkins states:

Iodine was applied to the majority of wounds and their immediate area, and a fresh temporary dressing adjusted; the next few hours were spent in endeavoring to get the pa-

tients as clean as possible. A hypodermic injection of morphine was given at this stage to three or four cases, and again once or twice during the night. It was found to be very beneficial. The wounds were mostly lacerated and punctured, deep or shallow, of all shapes and sizes, with several involving bones, causing compound comminuted fractures. Shock was present in several cases, and severe in three or four. Hemorrhage, of a somewhat severe oozing type, was persistent where wounds were deep; dressings required changing, and wounds had to be replugged. The procedure was as follows: 1. Careful removal of clothing. 2. Removal with sterile instruments, from the wound and its vicinity, of pieces of clothing, dirt, hair, loose bone, etc. 3. Thorough washing of wounds and their surroundings with warm, very soapy water. 4. Douching with warm water recently boiled. 5. Douching with mercury perchloride lotion. 6. Washing this away with sterile warm water. 7. Drying the wounds and their surrounding areas. 8. Re-application of iodine in and about the wounds. In the case of wounded limbs the whole limb was thoroughly cleansed. In the case of a wound in the body or head, a large area around the wound as well as the wound itself received attention. Shaving where necessary was carried out.

In the case of burns, all dirt, loose blackened or charred skin and hair were removed as far as possible. The dressings finally used were strips of picric acid lint, freshly wetted for the limbs, and masks cut into strips for the face. This dressing appeared to relieve pain quickly, and the cases did well. Mr. Hopkins was gratified to hear, later on, that the careful cleansing had been noticeably beneficial.

A SCARCITY OF LEECHES.

A complaint that the four great generals of the armies of the Germans and the Allies have overrun the best leech producing parts of Europe, with a consequent decrease in the supply of Hirudo, appears in the *Lancet* for January 30th over the signature of A. E. Shipley. Mr. Shipley, after appealing in vain to the United States and Canada, finally secured a large, healthy, and apparently hungry leech from India, now obtainable at 50 Wigmore Street, London, W. It is not the well known *Hirudo medicinalis*, but another variety, *Limnatis granulosa*. The writer recalls the fact that when the leech was at the height of its popularity, about 1830, Paris alone used to employ some fifty-two millions a year.

A NEW VOLUME OF THE INDEX CATALOGUE.

We welcome gladly the latest volume of the invaluable index catalogue issued by the surgeon general's office of the United States army, the nineteenth volume of the second series, comprising titles from U to Uzielli, authors and subjects. As stated by the librarian, this volume contains 3,046 author titles, representing 1,353 volumes and 2,744 pamphlets, also 3,736 subject titles of separate books and pamphlets, and 32,739 titles of articles in periodicals. This monumental work is absolutely indispensable to a medical editor, and its accuracy and comprehensiveness are amazing.

News Items.

Changes of Address.—Dr. S. H. Ackerman, to 1474 President Street, Brooklyn.

Dr. Charles Levin, to 68 West 117th Street, New York, after March 15th.

Dr. Henry S. Oppenheimer, to 276 Madison Avenue, New York.

California Academy of Medicine.—The following officers have been elected to serve for the year 1915: President, Dr. Emmet Rixford; vice-president, Dr. Thomas J. Orison; secretary, Dr. L. H. Briggs.

Officers of the Audubon Medical Society.—At the recent annual meeting of this society the following officers were elected: President, Dr. R. Emmet Walsh; first vice-president, Dr. Rudolph Orth; second vice-president, Dr. C. C. Coryell; treasurer, Dr. A. L. Malabre; secretary, Dr. V. C. Baker.

Philadelphia's Death Rate.—For the year 1914 the death rate of Philadelphia was 16.25 in a thousand of population, an increase of 0.52 over the rate for 1913. The actual number of deaths reported in 1914 was 20,941, an increase of 1,274 over the number reported during the year 1913.

Chicago Ophthalmological Society.—At the twenty-third annual meeting of this society, held on the evening of January 18th, the following officers were elected: President, Dr. Richard J. Tivnen; vice-president, Dr. W. E. Gamble; secretary-treasurer, Dr. Paul Guilford; counselor, Dr. J. Sheldon Clark.

Evening Wassermann Clinic in Brooklyn.—After February 20th, the Wassermann Clinic at No. 29 Third Avenue, Brooklyn, will be open Monday and Friday evenings, from eight to nine o'clock, instead of Tuesday and Friday, as formerly. The morning clinic will remain as heretofore; that is, nine to twelve o'clock daily, Sundays and holidays excepted.

Stomach Hospital Opened in Philadelphia.—The National Stomach Hospital, an institution devoted to the investigation and treatment of digestive disorders, was formally opened in Philadelphia on February 9th. The funds for the building were subscribed by persons interested in that branch of medicine. It is situated in Fifteenth Street, near Jefferson.

Change in the Period of Quarantine in Cases of Scarlet Fever.—In accordance with the effort now being made to bring the public health regulations and laws in New York into conformity with those of the State Department of Health, the quarantine period in cases of scarlet fever occurring in the city has been fixed at "thirty days and until discharges have ceased and the disinfection of the person has been carried out," instead of the thirty-five day period of quarantine previously enforced.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, February 22d, North Branch of the County Medical Society; Tuesday, February 23d, West Philadelphia Medical Association; Wednesday, February 24th, County Medical Society; Thursday, February 25th, Pathological Society, Germantown Branch of the County Medical Society; Friday, February 26th, Neurological Society, Northern Medical Association, Section in General Medicine of the College of Physicians, South Branch of the County Medical Society, Medical Club (directors).

The Burke Foundation.—Delayed twelve years, in part by litigation and in part by the wish of its donor that the charity should not be established during his lifetime, the Winifred Masterton Burke Foundation will soon begin active operations with a fund of nearly \$7,000,000. The Home for Convalescents, at White Plains, N. Y., for which John Masterton Burke, founder of the fund, made his original gift of \$4,000,000, is nearly completed; officers of the institution expect that it will be opened in May. It will have accommodations for three hundred persons. Dr. John S. Billings is one of the trustees of the foundation.

Medical Society of the County of New York.—A stated meeting of this society will be held on Tuesday evening, February 23d, instead of Monday, the usual date of meeting. The evening will be devoted to a discussion of various aspects of the Workmen's Compensation Law. Dr. Alexis V. Moschowitz will read a paper on the Relation of Hernia to the Workmen's Compensation Law, which will be discussed by Dr. William B. Coley and Dr. William A. Downes. The medical aspects of the law will be dealt with by Dr. Frederic W. Loughran, and George W. Whiteside, Esq., counsel for the society, will discuss the legal aspects of the law as it affects the medical profession. There will be a general discussion which will be opened by Dr. William S. Gottheil and Dr. Henry S. Stark.

Illinois Charitable Eye and Ear Infirmary, Chicago.—On Thursday, January 7th, twenty-five members of the staff of this institution gave a farewell dinner to Mr. Charles T. Gerrard, who has resigned as superintendent after serving for sixteen years in that capacity. Dr. Norval H. Pierce presided as toastmaster, and a silver loving cup was presented to Mr. Gerrard by Dr. Willis O. Nance. Dr. James L. O'Connor is the new superintendent of the institution.

The School for Health Officers at Harvard University.—This school, which is authorized by Harvard University and the Massachusetts Institute of Technology, offers a course of afternoon lectures at the Harvard Medical School, which is free to undergraduates and instructors of the Harvard Medical School and the Massachusetts Institute of Technology, and is open to others interested upon the payment of a fee of \$30. Dr. M. J. Rosenau, professor of preventive medicine and hygiene at the Harvard Medical School, is director. The courses of study cover a wide range, including medical, biological, hygienic, and engineering sciences, and practical health administration. A Certificate in Public Health (C. P. H.) is granted jointly by the two institutions to those who complete the course satisfactorily.

The Birth Rate of France.—The problem of repopulation in France is receiving the attention of the Academy of Moral and Political Sciences. Figures were presented at a meeting of the academy held on February 13th, showing that the number of births annually in the country during the last twenty years fell from 860,000 to 750,000. It was estimated that if a proportionate decrease continued for another twenty years the future military classes would be 30,000 fewer than the classes of 1914, 1915, and 1916. The question was considered so vital that it was suggested that important advantages should be accorded fathers of families having numerous children, and that the idea be generalized that the normal family comprises three children. It was suggested also that the heads of such families be allowed to share in a proposed recompense.

Mortality in New York Last Week.—The most noteworthy feature of the mortality during the week ending February 13, 1915, was the big increase in the number of deaths of infants under one year of age, there being 262 deaths recorded at this age group. The increase was confined to the boroughs of Manhattan and the Bronx, and was probably due to an increased mortality among infants from pneumonia and diarrheal diseases. At all ages over five years the mortality was considerably below that of the corresponding week in 1914. There were seven less deaths reported during the past week than in the corresponding week of 1914, and a lower death rate by 0.62 point, which, taking into consideration the increase in population, is equivalent to a decrease of 60 deaths.

Seven weeks have now elapsed since January 7, 1915, and the death rate for that period is 13.02 in 1,000 of the population, which is 0.67 point less than the rate in the corresponding period of the year 1914.

Personal.—Dr. Robert T. Legge, of San Francisco, has been appointed professor of hygiene in the University of California.

Dr. A. Strachstein has been appointed attending genitourinary surgeon to the Har Moriah Hospital, New York.

Dr. J. A. Murray has been appointed acting director of the British Imperial Cancer Research Fund.

Professor Arthur Keith, of the Royal College of Surgeons, London, will deliver a course of five lectures on anthropology at the Western Reserve University, Cleveland.

Dr. J. Chalmers Da Costa, professor of surgery at Jefferson Medical College, Philadelphia, delivered the annual Samuel D. Gross Lecture this year.

Dr. Arthur Hunter, a graduate of the University of Edinburgh, has been appointed to the chair of pathological chemistry in the University of Toronto, filling the place left vacant by the recent resignation of Professor J. B. Leathe.

Dr. W. W. Keen, of Philadelphia, read a paper on the Surgery of the Civil War Contrasted with the Surgery of the Present European War, at a meeting of the American Philosophical Society, held in Philadelphia on Friday, February 5th.

Dr. Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching, will deliver an address at the opening of the new Cincinnati General Hospital on Saturday, February 20th.

Officers of the Pathological Society of Philadelphia.—At the annual meeting of this society, held on Thursday, January 14th, the following officers were elected: President, Dr. M. Howard Fussell; vice-president, Dr. A. E. Taylor; curator, Dr. Robert A. Keilty; recorder, Dr. John A. Kolmer; secretary-treasurer, Dr. O. H. Perry Pepper; business committee, Dr. Allen J. Smith, Dr. William M. L. Coplin, Dr. Joseph McFarland, Dr. Richard M. Pearce, and Dr. Harold Austin; publication committee, Dr. Fred H. Klaer, Dr. E. H. Goodman, Dr. E. B. Krumbhaar, and Dr. Guthrie McConnell; membership committee, Dr. Eugene A. Case, Dr. Floyd E. Keene, and Dr. John A. Roddy.

Medical Society of the State of New York.—The 109th annual meeting of this society will be held in Buffalo on April 27th, 28th, and 29th, under the presidency of Dr. Grover W. Wende. The meetings will be held in the Sixty-fifth Regiment Armory, which is one of the largest in the country and will afford accommodations for all activities of the meeting, except the banquet. A restaurant will be conducted in the building and there will be ample space for commercial and scientific exhibits and numerous halls for general and scientific sessions. On the last night of the meeting a regimental parade and review by Colonel Gorgas will be held. The local committee of arrangements consists of the chairmen of the following subcommittees: Reception, Dr. Charles G. Stockton; meeting rooms, Dr. Nelson G. Russell; publicity, Dr. A. L. Benedict; ladies, Dr. Edith R. Hatch; transportation, Dr. Carl G. Leo-Wolf; banquets and hotels, Dr. Lesser Kauffman; exhibits and audits, Dr. Albert T. Lytle; registration and information, Dr. Edward A. Sharp. Dr. Wisner R. Townsend, of New York, is secretary of the society.

The Medical Society of the Missouri Valley.—The spring meeting of this association will be held in Omaha, Neb., on March 25th and 26th, under the presidency of Dr. Granville N. Ryan, of Des Moines, Iowa. A number of distinguished guests have accepted invitations; among them Dr. Fred. H. Albee, professor of orthopedic surgery in the University of Vermont and adjunct professor of orthopedics in the New York Post-Graduate Medical School, who will deliver the oration in surgery, his subject being the Future of the Bone Graft in Surgery, which will be illustrated with a number of lantern slides. The oration in medicine will be given by Dr. Charles Spencer Williamson, of Chicago, dean of the faculty of the College of Physicians and Surgeons; his subject will be an Experimental Study of Cardiac Overstrain. Others who have promised to contribute to the program are Dr. Reuben Peterson, of the University of Michigan; Dr. Robert H. Babcock, of Chicago; Dr. F. H. Wahrer, of Fort Madison, Iowa; Dr. Hugh Patrick, of Chicago; Dr. Paul Paquin, of Asheville, N. C.; and Dr. O. H. Brown, of St. Louis. Dr. Charles Wood Fassett, of St. Joseph, Mo., is secretary of the organization.

Contributions to the Belgian Fund.—The report of the treasurer of the Committee of American Physicians for the aid of the Belgian profession for the week ending February 13, 1915, shows that the following contributions have been made to the fund: Dr. O. O. Cooper, Hinton, W. Va., \$10; Dr. F. A. Dodge, Le Sueur, Minn., \$10; Dr. Alfred A. Herzfeld, New York, \$10; Dr. A. W. Sieker, Plymouth, Wis., \$5; Dr. Charles H. Cargile, Bentonville, Ark., \$10; Dr. A. A. Bornscheuer, Pittsburgh, \$2; Dr. Lyn Waller Deichler, Philadelphia, \$5; Dr. H. T. Goodwin, New York, \$5; Dr. Henry S. Weizel, Muncy, Pa., \$5; Dr. James S. Keyes, Brooklyn, \$5; Dr. J. I. Johnston, Pittsburgh, \$15; Dr. Frederick J. Ressegue, Saratoga Springs, N. Y., \$10; Dr. Frank H. Jackson, Houlton, Me., \$5; Dr. Howard L. Frost, Cleveland, Ohio, \$10; Dr. P. St. L. Moncre, Norfolk, Va., \$5; Dr. A. J. Braden, Duluth, Minn., \$5; Dr. Wendell C. Phillips, New York, \$75; Dr. Russell S. Fowler, Brooklyn, \$25; Dr. John W. Farlow, Boston, \$25; Dr. E. W. Link, Palestine, Texas, \$10; Dr. H. R. Link, Palestine, Texas, \$5; Dr. H. Gifford, Omaha, \$100; Jefferson County Medical Society, Birmingham, Ala., \$50; Dr. Edgar R. McGuire, Buffalo, \$10; Dr. Max Einhorn, New York, \$25; Dr. Joseph L. Miller, Thomas, W. Va., \$10; Dr. David Chester Brown, Banbury, Conn., \$10; Oshkosh Medical Club, Oshkosh, Wis., \$50; Dr. George M. Dill, Prescott, Wis., \$1; Camden County Medical Society, Camden, N. J., \$50; Dr. Joseph Walsh, Philadelphia, \$10; Dr. L. B. Pillsbury, Lincoln, Neb., \$5; Dr. E. E. Montgomery, Philadelphia, \$25; Dr. J. T. Clegg, Siloam Springs, Ark., \$1; Dr. K. B. Huffman, Bentonville, Ark., \$1; total, \$605.

Pith of Current Literature.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

January 5, 1915.

Complement Fixation in Variola, by Artur von Konschegg.—The extract of fresh variola scabs gave the best results. It was prepared by rubbing together 0.5 gram of scabs with six c. c. physiological salt solution, together with some powdered glass. After the glass had settled, the supernatant fluid was diluted in the proportion of one to five. This antigen gave positive results in the dose of 0.1 c. c. Normal serum required ten times this amount for the binding of complement. The conclusions, based on the result of the work, are that the serum of patients suffering from variola contains antibodies and that positive results can be obtained only when those antigens are employed which contain the exciting cause of variola. A case of variola which terminated fatally showed a diminution in the number of antibodies in the blood before death.

Alcohol Injections into the Gasserian Ganglion in Trigeminal Neuralgia, by George Hirschel.—The needle is introduced into the cheek opposite the second lower molar tooth and is guided upward by placing the index finger in the mouth between the ramus of the jaw and the maxillary tubercle until the planum infratemporale is reached. The needle has now been introduced for a distance of about six cm. and is pushed forward another 1.5 cm. This brings it in the region of the third branch of the trigeminal nerve. A few drops of two per cent. novocaine are injected and then 0.5 to one c. c. of seventy or eighty per cent. alcohol, drop by drop. Pain disappears almost immediately. The corneal reflex is either abolished or diminished. This lasts from a few hours to one or two days. One author has observed the permanent loss of the corneal reflex in fourteen of twenty-four patients injected. This method of treatment should be tried in severe cases and is an improvement over resection of the Gasserian ganglion.

Suture of the Heart, by Doctor Baumbach.—A patient who had been stabbed in the chest with a sword was admitted to the hospital half an hour after the injury. Inspection showed a wound in the fourth intercostal space on the left side which measured about 1.5 cm. in width and which cut the fifth rib from its upper margin to about its centre. The patient's condition was grave and an immediate operation was decided upon. The heart was exposed by resecting a portion of the fourth rib about eight cm. in length. It was at first difficult to locate the wound in the heart because of the amount of blood in the pericardial sac and because the heart moved to and fro with every respiration. The bleeding point was finally clamped. The pericardium was quickly emptied and the right ventricle presented. It showed a perforated wound just below the origin of the pulmonary artery. Two silk sutures sufficed to close the wound. The pericardium was drained with a small gauze drain. Three weeks later a litre of bloody fluid was removed from the pericardial sac. The patient left the hospital in about eight weeks and presented no cardiac or pulmonary symptoms.

Circular Suture of Arteries, by Doctor Mehliss.—These operations should be undertaken when a large vessel of an extremity is injured, as there is not only danger of gangrene when a large vessel is tied off, but also of disturbance of function in the extremity involved. Sutures can be passed through the entire thickness of the arterial wall without danger of forming thrombi, but it is better to avoid narrowing the lumen of the arteries so that the circulation is not impaired. A fine round needle is used, similar to that employed in intestinal work (Hagedorn 17). Silk is the suture material of choice.

January 12, 1915.

Therapy of Hay Fever, by Emmerich and O. Loew.—Calcium salts have been used in the treatment of hay fever; thence nuclei of gland, muscle and ganglion cells are nourished; these cells function better. Calcium salts strengthen the constitution, increase phagocytosis and the bactericidal power of the blood. The amount administered daily equals the calcium content of 0.25 to 0.5 litre of milk. It should be taken throughout the entire year, but from October to February the daily amount should be one half of that taken during the remainder of the year. Fruit and vegetables should make up a large part of the diet, as they are rich in calcium salts. The results of this treatment have been very good and no harmful effect on the kidney has been noted.

Hyperol.—This is a stable preparation, containing thirty-five per cent. peroxide. It is odorless, not poisonous, and acts as a disinfectant and deodorant. It also has the power of checking hemorrhage to a slight degree. It has its greatest action on that part of a wound in which through the agency of bacteria there is a breaking down of tissue. It acts without causing pain. It can be used either in substance or solution. Some of the conditions in which it has been employed are varicose ulcers, burns, infected and noninfected wounds, senile and diabetic gangrene. In fresh, unclean, but not infected, wounds, it has been used as a prophylactic measure, and it is of great value in oral conditions. Because of its deodorizing qualities it is of great advantage in dressing inoperable tumors which are necrosing, and because of its stability, its concentration and its solubility it is one of the most practical disinfectants that can be used.

Value and Technic of Subcutaneous Tuberculin Diagnosis, by C. Kraemer.—Diagnosis by means of tuberculin is not dangerous and its use at times is indispensable. In order to have a positive reaction it is not necessary to have high fever and other symptoms, and fever above 37.5° C. should not be considered a contraindication to its use for the purpose of diagnosis. The first dose should not be large, the habit of employing one mg. as an initial dose being entirely wrong. Many cases that show positive changes in percussion at the apices or in the intrascapular region react only slightly or not at all to tuberculin. This is especially the case in children. In the treatment of tuberculosis with tuberculin it has been found that sensitiveness to tuberculin returns in from three to nine months or not at all. Cases that show a negative von Pirquet reaction a year after the last tuberculin reaction never

give a positive reaction subsequently. In using tuberculin as a diagnostic measure the objects for which it is employed are to determine as rapidly as possible whether tuberculosis exists and whether the symptoms of the patient can be attributed to it. A case can be considered as cured when a patient (not cachectic) does not give a positive reaction to tuberculin. This is not a biological immunity against tuberculosis, but a natural immunity against tuberculin. Some authors do not employ tuberculin subcutaneously in the diagnosis of tuberculosis as they think it too dangerous. A large dose is no more required for diagnosis than for treatment—the best results are obtained when small doses are employed. It is best to begin with a dose of 0.01 mg. and increase slowly. Starting with small doses is of value from a diagnostic standpoint. If the symptoms present are due to tuberculosis they are improved by small doses. If not due to tuberculosis they remain unimproved. Tuberculin therapy is a true prophylactic ferment therapy according to Abderhalden and the clinical diagnosis of tuberculosis is not, necessarily, determined by the tuberculin reaction.

January 10, 1915.

Treatment of External Eye Diseases, by Dr. Bernoulli.—Noviform has been used in the treatment of blepharitis and the results have been better than when white precipitate ointment or yellow oxide ointment was used. It does not burn nor irritate; the disease is markedly shortened. It is applied in the form of an ointment of five per cent. to ten per cent. strength, two to three times daily, and, at the same time, since sulphate is used either in the form of drops or as an eye wash. In eczematous conjunctivitis accompanying eczema of the face, twenty per cent. noviform salve is employed. After removal of foreign bodies from the cornea, it is used in three per cent. to ten per cent. strength. In erosions of the cornea, a five per cent. or ten per cent. strength ointment is combined with ten per cent. atropine. In bloody operations of the eye, as chalazion enucleation, it is used in the form of a powder.

X Rays in Carcinoma of the Stomach and Intestine, by Decker and H. von Bomhard.—The advantage of treatment with x ray is that the area attacked is larger than when radioactive substances are used; when cross fire is employed the tumor can be attacked from all sides. The rays can be applied through the skin or the skin can be dissected back and the rays applied to the muscles or directly to the tumor. The best results were obtained by application to the skin and this is by far most convenient to the patient. Hard tubes are to be preferred. The dose employed has been from 1775 to 2400 X administered during a period of several months. As to the combined treatment with x ray and injections of encytol intravenously, the authors have not had sufficient experience to express a definite opinion. Of the cases in which they employed the combination and those in which the x ray alone was used the latter showed the best results; and they warn against crediting the injections of encytol with the improvement observed in this class of cases. During the course of the treatment no untoward symptoms were observed except that after repeated applications of the x ray the patients complained of fatigue and the treatment had to be stopped for a

few days. The authors conclude, as a result of their work, that the small doses heretofore employed have no result on deep seated carcinomata; that large doses of hard rays given at short intervals have a good influence on inoperable carcinomata; that there need be no injury to the skin and that inoperable carcinomata of the stomach and intestine should be subjected to this form of treatment.

Gunshot Wounds of the Lung, by Erich Toenien.—As regards the clinical course of a case, there is no difference between those cases in which the bullet remained in the thorax or those in which it did not. Cases without infection showed a rise in temperature of 3° C. or more. After three or four weeks fluid was seldom found in the pleura. Hemorrhages in the pleura when accompanied by pneumothorax are easily infected, the infection probably being brought in through the bronchi. In one case of pneumothorax the so called oculopupillary trilogy, narrowing of the palpebral aperture, narrowing of the pupil and sinking back of the eyeball on the affected side, was seen. In this case the sympathetic or the root coming from the eighth cervical segment was injured.

PARIS MÉDICAL.

January 10, 1915.

Military Surgery, by Henri Hartmann.—Attention is called to the unexpectedly large proportion of wounds due to artillery projectiles in the European war; in a series of cases recently seen no less than 168 wounds had been due to artillery, compared to ninety-nine caused by rifle bullets. Under these conditions the treatment of the wounded has had to differ considerably from that advised by certain authors at the beginning of the war, stress being now laid on active preliminary surgical treatment, including dissection of infected tracks, removal of foreign bodies, and copious irrigation and drainage, as prerequisites in conservative surgery, i. e., in surgery which avoids complications and secondary mutilating procedures. Evidence of the prophylactic efficiency of antitetanic serum was obtained in a series of 311 cases of wounded soldiers, in whom no tetanus appeared except in two instances in which the preventive injection had been by error postponed until six and eight days after admission to the hospital. As regards gangrene with gas formation, Hartmann points out the fallacy of attempting to arrest the process by means of interstitial injections of hydrogen dioxide solution at the margins of the gas infiltrated tissue; the only rational treatment is to deal particularly with the initial focus, removing all foreign bodies there, freely separating and disinfecting the tissues, and even resorting to amputation where the entire thickness of the limb is involved. In dealing with wounds in general, Hartmann prefers irrigation with hydrogen dioxide solution or one in twenty phenol solution to the use of tincture of iodine. In badly infected wounds immersion in antiseptic fluids or the use of antiseptic sprays, is recommended. Radioscopic examination of all wounds is advised, immediate detection of fractures and metallic foreign bodies being thus rendered feasible.

Anticholera Vaccination, by C. Dopter.—Stress is laid on the efficiency of this procedure, as shown in the Balkan wars. Arnaud reported that whereas

the incidence of cholera among 14,332 unvaccinated officers and enlisted men was 5.75 per cent., that among 21,216 men vaccinated once was but 3.12, and among 72,652 men vaccinated twice, 0.43. In the civil population of Greece, Cardamatis reported analogous percentages of 2.12, 0.26, and 0.01, respectively. The vaccine used in these cases had been prepared at the Pasteur Institute in Paris and consisted of cultures on agar heated to 60° C. for one hour. Dopter considers three injections at five day intervals essential if immunity is to be acquired. Doses of one, 1.5, and two c. c., respectively, should be administered in succession.

The Hypnosis of Battle, by Milian.—A peculiar mental condition noticed in certain soldiers recently in battle is described. The victim is incapable of walking unless pushed or led by the hand, but when placed on his feet, stands erect and motionless, with the head bent forward and the eyes half closed. He cannot be awakened, but is not in a state of coma, stertorous breathing and conjugate deviation not being present. In some instances a condition of hallucinatory delirium appears when verbal inquiry is made of the patient as to his experiences in battle. The hypnosis is met with oftentimes in young city dwellers. Fatigue and starvation are the chief predisposing causes, and physical or psychic trauma the exciting cause. The hypnotic state lasts from two or three days to a week or even twenty-five days, consciousness then suddenly returning.

REVUE MÉDICALE DE LA SUISSE ROMANDE.

December, 1914.

Congenital Radioulnar Synostosis, by C. Martin-Du Pan.—Three cases of this uncommon deformity, all encountered within a year in children aged eight, and thirteen years, respectively, are reported, and a general account of the symptomatology, etiology, diagnosis, and treatment of the condition given. The cardinal sign of the radioulnar synostosis was observed, as in cases previously reported, to be an inability to supinate the forearm, which is permanently fixed in complete pronation, owing to a bony union of the proximal end of the radius, expanded in a clublike enlargement, to the ulna. The subject is unable to carry anything in the palm of the hand or to make use of a screw driver, and palpation reveals absence of the head of the radius. The external aspect of the elbow, however, not being altered, there is a tendency to ascribe the lack of supinating power to an ankylosis following traumatism; hence the advisability of resorting to radioscopy whenever passive supination meets with firm bony resistance, especially in bilateral cases, a symmetrical traumatism being extremely unlikely. Reviewing the possibilities of efficient surgical treatment of the condition, the author concludes against advising any treatment in the ordinary case, results so far obtained having been disappointing. He recognizes, however, the likelihood that where prolonged, careful postoperative treatment, calculated to keep the artificially separated radius and ulna from reuniting, can be applied, results better than those as yet witnessed will be secured. Interposition of muscle tissue or of hernial sacs between the exposed bony surfaces is strongly recommended.

Notes on Five Hundred Cases of Enucleation of the Eyeball, by J. Gonin.—Enucleations of the

eyeball were found to comprise about ten per cent. of the aggregate of operations performed on the eye in a hospital with which the author is connected. Trauma was the original cause of the condition requiring enucleation in about six tenths of the five hundred cases; inflammatory affections such as corneal ulcer, choroiditis, iridocyclitis, and syphilitic or tuberculous disease, in three tenths, and malignant growths in the remaining tenth. In over two hundred cases enucleation was performed because of apprehension of a later sympathetic ophthalmitis. Deep infection of the eyeball and persisting pain in an atrophic eye were also taken as indications for the removal—in nearly one hundred cases. The majority of the eyes enucleated were almost or entirely blind before removal. Detachments of the vitreous body and of the choroid were found to occur with unexpected frequency. Loss of even a considerable part of the vitreous was observed to be of relatively slight consequence, provided that the vitreous had not previously become adherent to the retina.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS

January 27, 1915.

Hiccough in Tuberculosis, by M. Arredondo.—The hiccough which is seen in tuberculosis, and which is followed by vomiting is analogous to the emesis producing cough first described by Morton. In these cases ingestion of food produces cough and vomiting; cough, then ceases. In some cases by the same mechanism hiccough is produced instead of cough. Likewise the resulting emesis relieves the hiccough. Such cough or hiccough is almost always found in incipient tuberculosis when there is no expectoration. Various theories of the mechanism of this hiccough have been evolved. Peter considers that it is due to hyperexcitability of the pneumogastric, whilst others, as Mathieu, think that there is involvement of the solar plexus. There is a remarkable frequency of vomiting in early phthisis, which is best relieved by drugs such as menthol, which diminish the sensibility of the gastric mucous membrane. The same treatment is efficacious in those cases where hiccough instead of cough is the cause of the vomiting.

Should Hernias Recur after Operation? by I. de Velasco.—If the term radical cure is to be used, then recurrence is operative failure. The writer describes his own method of repair of hernia, in which he inverts the sac and puckers it inside the internal ring so as to form what he calls an internal truss. He has had only two cases of recurrence since using this method, and both were in obese subjects whose occupation involved great muscular strain.

LANCET.

January 29, 1915.

The Telephone Attachment in Surgery, by James Mackenzie Davidson.—Localization of metallic foreign bodies by means of the telephone is simple. If two similar or dissimilar metals, connected with the two poles of a low resistance telephone receiver, are brought into contact with the tissues of the body, an electric current will pass when one of the metals impinges upon the metallic foreign body and a grating noise will be produced in the receiver. Davidson has experimented with

the different combinations of metals and has found that the greatest current, and therefore, the loudest noise, is developed when the external pole is made of a large plate of carbon and the inner, or probing pole is made of silver, steel, or is nickel plated. He has also perfected this means of localizing and removing a metallic foreign body by making it possible to connect the pole which is to come into contact with the foreign body with any ordinary surgical instrument. Thus, when the foreign body is connected to a scalpel, it is possible to dissect it by the sense of sound, with a minimum damage to the tissues, for each time that the scalpel impinges on the body the operator is aware of the contact. By means of forceps, the inner surfaces of which alone are of metal, it is also possible by the sense of sound to be certain when the body is grasped between the two blades, and one can remove invisible foreign bodies quite readily by this means without extensive dissection.

Electrotherapy at a Base Hospital, by W. J. Turrell.—Frostbite has been found readily amenable to treatment by means of diathermia. The treatment gives almost immediate relief of the intense pain in these cases, reduces the swelling and stasis in the involved tissues, increases their vitality, and maintains the tissues dry and aseptic in necrotic cases. The separation of the necrosed tissues is hastened also by the increased hyperemia produced by the treatment. In cases in which sensation to heat is lost, the method is not safe on account of the danger of blistering. Acute neuritis was found to respond very favorably to the application of the high frequency current through a vacuum tube, and where ulceration and necrosis were present, the static breeze with the patient negatively charged gave very good results, leading to prompt drying of the tissues and immediate relief of pain. One case of spinal concussion was promptly cured by the use of Bergonié's electrically provoked exercises.

Fear and Disease, by E. T. Jensen.—It is well known that toxins derived from the intestines have a deleterious effect on the individual, but not all cases with constipation or intestinal stasis show symptoms of the absorption of these toxins. To explain the presence of symptoms in some patients and their absence in others, we must suppose that some absorb the toxins while others do not under similar conditions of stasis. There must be some factor present in the poisoned patients which aids the absorption. This is believed by the author to be found in the presence of some form of fear. He shows that fear and surgical shock are closely similar and that in both there is a marked paresis of the intestinal musculature with a secondary dilatation of the gut. This dilatation enormously increases the area of the absorbing surface, delays the blood and lymph circulation in the walls of the gut, and increases the length of time that the toxic substances are retained in the intestine. Further, the dilatation of the intestine drags upon the splanchnic nerves and serves thus to establish a vicious circle. By fear the author would understand all psychical states in which there is any element of fear, worry, sorrow, anxiety, exaggerated self consciousness, etc. Not only does Jensen

seek to account for the development of these toxic states in those subject to these conditions through the effects of fear, but he believes that the delayed convalescence from various forms of disease is also attributable in large measure to these fears. Such an explanation would serve to account for the recoveries attributed to Christian science and other cults in which the psychical state of the patient is changed from one of fear to one of hopefulness.

BOSTON MEDICAL AND SURGICAL JOURNAL.

February 4, 1925.

A Study of Children with Positive Skin Tuberculin Reactions, by Orville F. Rogers, Jr.—The report deals with children in whom the von Pirquet test was positive. The number was sixty-nine. Eight of the sixty-nine died in hospital, forty-two have been followed up, nineteen have disappeared. This study seems to show that a positive skin reaction before the age of two years seems to be an indication that the child's life is likely to be short.

Significance of X Ray Examination Following Operation for Congenital Pyloric Tumor, by Charles L. Scudder.—The writer groups cases of congenital stenosis of the pylorus into four classes: 1. Cases met with prior to recognition of the condition by medical men; treated medically, experimentally fed, all ended fatally. 2. Cases unrecognized since that date; all the patients treated medically have died. 3. Cases which have been recognized by the attending physician as congenital stenosis of the pylorus, referred to the surgeon for treatment, operated in, and ended fatally, usually from starvation because of delay in treatment. 4. Cases recognized by the physician, which are referred to the surgeon, operated in, and terminate favorably. The great difficulty lies in diagnosis. The writer does not believe that pyloric spasm plays any part in congenital stenosis of the pylorus, but holds that the tumor alone, with the mucous membrane changes, is an adequate cause of the obstruction in all its phases; the only permanently effective treatment is surgical, that a postponement of the operation with the idea that the hypothetical spasm will let up, the tumor disappear, and the child recover, is unjustifiable; a baby having tumor obstruction will always have it.

Some Studies in Fat Indigestion, by Charles Hunter Dunn.—The ideas now held at the Infants' Hospital as to the treatment of severe cases of fat indigestion may be summarized as follows: The milk modifications used must be low in fat, average in carbohydrate, comparatively high in protein. The extra sugar should be maltose. This will suffice for some of the milder cases. Severe resistant cases are those which cannot gain on a low quantity of fat, and cannot tolerate an increase; many of these can be saved only by human milk. Even a little breast milk is of value and may save a case which would otherwise be fatal. After a period of breast milk feeding, many cases are found to be no longer severe and resistant to artificial feeding. If breast milk cannot be obtained, the feeding is very difficult and the outcome uncertain. Excessive increase of carbohydrate or protein will not help, and may do harm. Giving the protein in the form of precipitated casein may be tried, as it may help in some cases. Whey mixtures are of no help, except

sometimes in very young babies, and may do harm. The only way is to keep the fat low and expect a period of loss of body weight. If the babies begin to gain when the fat is increased, it is not a sign of permanent improvement; they may go to pieces at any time. Frequent examinations must be made of the stools for free fat and excessive soap, in the presence of which the fat should be reduced even if the baby is gaining.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

February 6, 1915.

Sensitized versus Nonsensitized Typhoid Bacteria in the Prophylaxis and Treatment of Typhoid Fever, by A. L. Garbat.—By sensitization is meant the mixing of an antigen (bacteria, red blood cells, proteins, etc.) with its specific antibodies, these antibodies being found in the serum of an animal which has been previously immunized with the particular antigen. The inoculation of dead typhoid bacteria (ordinary vaccine), as a prophylactic measure against typhoid fever is now well recognized. If such vaccine causes mainly a bacteriolytic reaction, and sensitized vaccine mainly a bacteriotropic response, would it not be well in prophylactic immunization to inoculate with both varieties? In this way a combined form of immunity would be obtained. The dose of typhoid vaccines for therapeutic purposes is far from definitely established; as a rule, bacteria can be given in much larger doses when sensitized than nonsensitized. In the series of cases reported, 500 million of sensitized bacteria were employed as the standard dose, both for the first and subsequent inoculations; though, naturally, one had to be guided by the severity of the illness, age of the patient, and reaction from the inoculation. From the results observed, the conclusion is reached that the treatment of typhoid with sensitized bacteria offers a more rational therapy from an immunological point of view than that by ordinary nonsensitized vaccine. The repeated inoculation of large doses, even in very ill patients, was not attended by any harmful effects or a distinctly negative phase; the general course of the disease seemed milder and complications less, while the crisis in the infection took place in but a small proportion of cases; the improvement usually being gradual.

Diabetes mellitus Treated with Fluid Cultures of the Lactic Acid Bacillus, by A. C. Henderson.—This treatment was undertaken in the cases referred to for the reason that several references have recently been made in medical literature to the successful treatment of diabetes by the method in question, and the conclusion drawn from four cases, which were very carefully observed, was that no improvement was effected by the administration of the fluid culture of the lactic acid bacillus either as to the glycosuria or the acidosis.

The Nursing Infant, by B. Craige.—When the father and mother are healthy, the mother leads a well ordered life, and the baby is normal at birth, by feeding from the beginning every three hours up to 9 or 10 p. m. and once between 1 and 3 a. m., the baby will sleep, be contented, and gain systematically from four to six ounces a week, with satisfactory growth and development. This schedule does

well up to weaning time, provided that the night feeding is discontinued after the third or fourth month. There are some dyspeptic infants who may do better on a four hour schedule temporarily, and some premature or very weak ones, on small feedings every two hours. The milk equilibrium is not usually established until about the sixth week; so one should not be discouraged too soon. Regular, strong nursings by a healthy infant can overcome many difficulties. In the composition of the milk, aside from the nervous element, the fat and proteins are the only constituents apt to be at fault. If a baby has colic after each feeding, is uncomfortable and restless, has facial eczema, vomits sour excreting mucus, has stools which smell sour and scald the skin, or has constipation, with musty gray stools, the fat content is too high. To reduce this fat excess is more difficult than to raise a deficient percentage. Fresh air and exercise, with a diet consisting of meat once daily, fruits, vegetables and liquid food, but no alcoholic beverages, will accomplish much if the nursings are not too frequent. When the protein is the disturbing element, there are colic, constipation, or diarrhea with mucous stools containing tough white curds; such a condition is usually found with mothers leading a sedentary life and eating much meat, eggs, and highly seasoned food, with a lack of fruit and vegetables. Where there is colic it is often necessary to stop feeding entirely for twenty-four hours. Frequently, diluting the milk by giving water, lime water, or barley water before nursing helps; nursing a few minutes and stopping a short while, or the use of a nipple shield, may be beneficial. Good results may sometimes be obtained with peptonizing powder dissolved in water and given before each feeding. Sugar should never be used in a prescription for colic; glycerin is a good substitute. The author treats also of insufficiency of milk and of weaning.

A Case of Splenomyelogenous Leucemia Treated with Benzol, by C. F. Graham.—This case is of interest both because of the immediate benefit after use of the drug, and of a later acute recurrence. The patient, a woman of forty years, was in a desperate condition when admitted to hospital, on June 3rd, and as soon as she was somewhat improved by rest and digitalis, the administration of benzol was begun. Under it she steadily improved until July 24th, when the recurrence was noted. On July 30th benzol was discontinued, and within thirteen days, death ensued.

MEDICAL RECORD.

February 6, 1915.

Treatment of Sciatica by Epidural Injection of Saline Solution, by I. Strauss.—The epidural space in an adult begins at the lower edge of the first sacral vertebra, where the dura ends, and extends down to the sacrococcygeal articulation, and it is at the latter level that the injections are made. The patient is placed, if possible, in the knee chest position, and if this cannot be done because of pain, the needle is inserted while the patient lies on the side, with the knees and thighs flexed. The needle should be about eight cm. long and about one mm. in calibre. It must be firm, and should be inserted to a depth of six cm. to reach the second sacral

vertebra. It is advisable to anesthetize the skin carefully with novocaine and the tissue overlying the foramen sacrale superius and ligamentum sacrococcygeum. The injection consists of warm sterile physiological saline solution. To the first ten or twenty c. c. of saline is added 0.3 of novocaine with suprarenine, and a few minutes are allowed to elapse before injecting the remainder. In all, from sixty to eighty c. c. of solution are injected at a time. The most difficult patients to cure are those complaining of pain in the outer aspect of the leg and foot. The procedure has been of benefit in diagnosis, and in two cases it has been possible to exclude sciatic nerve disease by the failure of the injection to give relief.

Treatment of Sciatica by Perineural Infiltration with Physiological Saline Solution, by W. M. Leszynsky.—In February, 1912, Leszynsky reported twenty-five cases of this kind, and since he has had 135 additional cases. The number of injections required varied from one to six, and averaged three injections. Under proper technic and strict asepsis the procedure is harmless, and no complications or unpleasant symptoms have ever been met with. His larger experience has confirmed the opinion previously expressed as to the marked value of the treatment. Several patients have not reacted satisfactorily, or have not given the plan an adequate trial, but they have been the exceptions. He does not recommend this treatment in every case, for many patients are relieved and recover under customary therapeutic measures. In subacute and intractable cases, however, it has proved the most satisfactory addition to the means of treating sciatica which has as yet been devised; and it has not up to the present received the recognition its importance demands. In the technic followed by him the patient lies on the abdomen with the legs fully extended and the feet projecting beyond the edge of the table, and a firm pillow is rolled and placed under the lower part of the abdomen in order to favor relaxation of the gluteal muscles. For the purpose of locating the nerve the following measurements are taken: A line is drawn from the sacrococcygeal articulation to the posterolateral border of the great trochanter; at the junction of the inner one third and the outer two thirds of this line is found the spine of the ischium, and one inch to the outer side of this point, the point of puncture is located. Before inserting the needle, an area of the skin about four cm. in diameter is painted with tincture of iodine, but no anesthetic is employed. From eighty to 120 c. c. of sterile saline solution is used for one injection.

The Danger of Delay in the Diagnosis and Treatment of Intussusception in Infancy, by F. W. Peterson.—Acute intussusception is far more dangerous to life than appendicitis and, theoretically at least, belongs exclusively to the domain of surgery. In the beginning of the attack the symptoms—pain, vomiting, mucohemorrhagic stools, etc.—depend upon the degree of strangulation, rather than on obstruction of the bowel. Later, in addition to obstruction and strangulation, toxemia develops as a result of injury to the intestinal wall and from decomposition of the bowel contents. The late condition is that met with in every variety

of acute intestinal obstruction. Aerohydrostatic and mechanical measures can succeed in but a limited number of cases, and such treatment is not without danger; while early laparotomy, with manual reduction of the invagination, is the safest, simplest, and most successful method of treatment.

Pituitary Extract in Uterine Bleeding; Preliminary Report of Cases, by Adolph Jacoby.—The hypodermic use of pituitary extract has proved a very valuable procedure, it having been uniformly successful. In every case of menorrhagia the duration and amount of the menstrual flow were diminished. In cases of metrorrhagia the same diminution was noted, and the intervals between bleedings were lengthened. In cases of continued bleeding after operation, the bleeding ceased and the normal menstrual cycle was restored. In one case in which the extract was used for threatened abortion the bleeding stopped, but more extensive experience will be necessary before this treatment can be regarded as advisable in all cases of this character.

AMERICAN JOURNAL OF OPHTHALMOLOGY.

December, 1914.

Abducens Palsy Following Nasal Trauma and Nasal Infection, by A. E. Ewing and Greenfield Sluder.—The first case was one in which the right sphenopalatine ganglion was injected with alcohol and carbolic acid to relieve a severe ganglion neuralgia. Immediately there was loss of motion outward in the right eye and a slight flushing of the conjunctiva. The muscles of the eye were not affected except the externus, but this was markedly paretic. Gradual spontaneous improvement followed which did not become complete until after the lapse of three months. This is a positive instance of an abducens paralysis produced by a small, localized, direct nasal injury, and as it is a positive evidence of the intimate relation of this region to the oculomotor nerve supply, it is a point in clearing up the question of the dependence of oculomotor palsies on inflammation of the posterior ethmoidal and sphenoidal sinuses.—The second patient was a young woman the vision of whose right eye was slightly lowered, but variable. She had a slight nystagmus on looking strongly upward or downward, and four days later, a paresis of the externus was found. The fundus was normal. Suppuration was found in the right sphenoidal sinus, which was opened. All the ocular symptoms disappeared within a few weeks. This case is of interest because of the diplopia, which was at first indefinite, the accommodative spasm, the lowering of vision in the right eye, and the nystagmus in extreme upward and downward movements, all of which combined were evidence of a slight oculomotor and optic nerve toxemic involvement. Later the abducens became more affected, probably by reason of toxemia, and it may be that many amblyopias, temporary muscular anomalies, and obscure disturbances of the accommodation, ordinarily ascribed to hysteria, may really be toxemias due to nasal infection.—The third patient, a boy aged six years, had had total paralysis of the left abducens for ten days. Inflammation found in the left sphenoidal sinus was treated and the muscular paresis improved.

SURGERY, GYNECOLOGY, AND OBSTETRICS.

December, 1914.

Cancer of the Pyloric End of the Stomach, by William J. Mayo.—The writer presents the following one stage operation which he believes has a large field of usefulness, if it does not become the method of choice: The diseased portion of the stomach is removed in the usual way and the stump of the duodenum closed and buried. An opening is made in the avascular arcade of the transverse mesocolon and the upper jejunum is pulled through until it can be easily brought into contact with the stomach. The end of the stomach which is held in the crushing clamp of Payr, is united by suture to the loop of jejunum quite as the ordinary gastroenterostomy is made. If the diameter of the end of the stomach is very large, it can easily be diminished, by placing the sutures in such a manner as to take a proportionately greater bite in the stomach than in the intestine, thus reducing the lumen of the stomach as the suturing progresses. The stomach is anastomosed to the jejunum at a point where the jejunal blood supply is extraordinarily good, and the jejunum can be depended upon to do more than its share in the healing process. Before the inner through-and-through sutures are placed, the stomach and intestines are grasped with elastic holding clamps to prevent soiling, the inner row of sutures is then run entirely around and the outer row completed. The entire anastomosed end of the stomach is then drawn down below the transverse mesocolon and the margins of the opening in the transverse mesocolon are carefully attached by sutures to the wall of the stomach. Fine silk is used for the peritoneum sutures and chromic catgut for the through-and-through inner row.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Dr. GEORGE KOSMAK in the Chair.

SECTION IN OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held October 27, 1914.

Broad Ligament Varicocele.—Dr. HENRY DAWSON FURNISS stated that in both of his cases the diagnosis was made before operation and was based on the absence of definite physical findings, together with a history of dull, aching, bearing down pain in the lower abdomen, made worse by exertion and relieved by rest in the recumbent position. In both instances the diagnosis of broad ligament varicocele was confirmed at operation. The ovarian veins on either side were doubly ligated at the pelvic brim, two ligatures were placed around the veins in the base of the broad ligament, and a Gilliam suspension operation was done to give the uterus extra support and to help in the prevention of passive congestion. Many patients that they saw complaining of great pelvic discomfort, made worse by exertion and relieved by rest, had pelvic varicocele, and if this was borne in mind one would be able to diagnose most of them before operation.

Complete Removal of Early Adenocarcinoma of Uterus by Exploratory Curettage.—Dr. L. J. LADINSKI stated that it had been established as an undoubted and scientific fact that early adenocarcinoma of the uterus could be completely removed by curettage. Nineteen cases had been reported in the literature, and to these he would add three of his own. In these twenty-two cases, all of which were carcinoma of the body of the uterus, the disease was removed *in toto* by the curette. Of these, nine surely, and possibly ten, were instances of carcinomatous degeneration of uterine polypi and in the remainder the growth was localized in the mucosa. In nineteen cases extirpation of the uterus was practised, while in four curettage was not followed by radical operation; the patients in whom no extirpation was done remained well from one to four years. One reason for the scarcity of reports of such cases might be found in the fact that when a subsequent curettage did not confirm the finding of carcinoma at the first curettage or if the patient continued well for an indefinite time after the curettage had shown adenocarcinoma, the circumstance was attributed to mistaken diagnosis and the reports did not find their way into print. Another reason for the apparent scarcity for these reports was that exploratory curettage was not resorted to as often as it was indicated, and routine microscopical examination was not practised to the extent that it should be. When clinical symptoms pointed to cancer of the uterus and exploratory curettage confirmed the diagnosis, no one would question the indication for extirpation of the uterus. The complete removal of adenocarcinoma by the curette, without extirpation of the uterus, could not be regarded as an adequately radical operative measure. The true interest of womankind demanded that this should be insisted on in no uncertain measure.

Dr. ELI MOSCHCOWITZ said that there were parallel occurrences in pathology to the cases just related. The simple removal of a cancerous polyp had been observed to effect a cure in early cancer of the rectum, and Thompson, of London, had reported a similar phenomenon in cancer of the larynx. It was evident that early in the development of carcinoma of the uterus, it was possible that it might be removed completely by curettage. These specimens proved the fallacy of attempting to prognosticate the clinical malignancy of a new growth by morphological characteristics alone.

Dr. JAMES EWING said that in the face of the evidence presented one could not doubt the existence of such a type of uterine carcinoma, and they were not all polypoid. Cancer could not be considered as one disease, but as a group of diseases, and therefore no blanket rules for treatment could be laid down. Cancer was different in different organs and different in the same organs. There should be a thorough pathological examination in every case in order to determine the method of treatment. There were various degrees of malignancy that must be dealt with in detail and one should find out the degree of malignancy with which one was dealing.

Dr. HOWARD C. TAYLOR believed that curettage preliminary to a hysterectomy for fibroid tumor was not the best course. If a supravaginal hysterectomy

was done, the uterus could be opened and if malignancy was found the cervix could be removed subsequently. If no malignancy was found, the cervical canal could be excised, and these two procedures would exclude the possibility of a malignant condition more thoroughly than a preliminary curettage. In curetting a malignant condition there was danger of scattering the cancer cells into the surrounding tissues. Doctor Ladinski had furnished ample evidence that there were some cases of carcinoma of the fundus of the uterus which were cured by preliminary curettage, but it was well to bear in mind that pathologists did not always agree in the diagnosis of malignancy. A case came under his observation in which it seemed that the malignant condition was entirely removed by the preliminary curettage.

Dr. I. C. RUBIN said that as to the question what constituted a malignant epithelium, it might be of advantage to recall that in certain conditions as in healing erosion of the cervix, an alteration of the morphological character of the epithelium had frequently been observed. From the morphological viewpoint such epithelium had no significance of malignancy; it was a restorative process. Occasionally one might encounter an altered epithelium, in which one might be very much in doubt whether the epithelial changes were those of a malignant growth. In these cases the best procedure was to keep the patient under careful control and observation, and, if necessary, a second curettage should be done. In a third group of patients it was possible to recognize small cancer foci as such because of the well marked cell aberration. When there was a conspicuous difference in the size, shape, arrangement, and chromatin content of the individual cells and when there was no evidence of cell borders, but there was clumping of the nuclei, or mitosis, giant nuclei, and giant cells, whether or not there was isolation of alveoli or penetration into the depth, they were sufficient to denote cancerous epithelium. There was a type of growth called the *Zuckerguss* or sugar coated variety of cancer, which might involve the entire mucosa of the uterus with but slight penetration of the epithelial processes. These were uncommon, but it was conceivable that they would yield to the curette if it was used vigorously enough. At the present time no one would be satisfied with curettage alone as a cure even of the earliest cases of cancer of the uterus.

Dr. HERMAN J. BOLDT had studied all of the cases reported and there was only one, the second that Doctor Ladinski reported, that offered anything not hitherto known.

Dr. L. J. LADINSKI had been in accord with Doctor Taylor that it was inadvisable to do a preliminary curettage for a fibroid until he had studied these cases. Now he favored preliminary curettage as it added no special danger. In one case which later turned out to be adenocarcinoma supravaginal hysterectomy had been done by another surgeon four years ago, and the suffering of this patient had been intense ever since; she had been operated on one year ago for intestinal obstruction. The suffering of this patient had convinced him that a preliminary curettage added no risk and in such a case would have discovered the presence of cancer. The

question before them was in regard to the total removal of the uterus after the carcinoma had been removed by the exploratory curettage. It would be a false doctrine when they were trying to instruct physicians and the public in regard to the necessity for early diagnosis and treatment in cancer to teach that in cases of this kind there should be procrastination.

Twilight Sleep.—Dr. W. H. KNIPE said that the wonderful results obtained by Krönig and Gauss in Freiburg had led many men to attempt the use of scopolamine and morphine during labor. The fact that these attempts were frequently unsuccessful might be attributed to a poor preparation of scopolamine, to the use of too much morphine, to the attempt to achieve absolute painlessness in childbirth, or to a technic which was entirely different from that recommended by Gauss. The method of administering these drugs which was attempted some years ago in this country was wrong, the preparations were not stable, morphine was used too freely, and scopolamine was given in too large doses. It was essential for those who were using the Gauss method to follow it in every detail. From Freiburg and elsewhere in Germany 8,000 cases had been reported with excellent results for both mother and child. Conditions necessary for a successful sleep were that the physician should have a thorough knowledge of obstetrics so as to know when interference was indicated; that he must give all his time to the patient after the first injection; that a preparation of scopolamine must be used which was stable; that morphine must be used with extreme caution; that the environment be such that reasonable quiet and the absence of bright light were obtainable. The ideal place was a hospital. Patients reacted very differently to scopolamine and after the first injection of morphine and scopolamine had been given the reaction to the pupillary, motor coordination, memory, and Babinski tests must be noted. The idea was to keep the patient neither in a zone in which impressions were perceived and stored in the memory and in which the patient was awake, nor in a state of narcosis. In the proper zone the patient gave evidence of painful sensations, but after the ordeal was over, she had no memory of these pains nor of the birth of the child. Absolute painlessness was an indication of overdosing. The first dose consisted of morphine hydrochloride 0.01 gram injected subcutaneously, and at the same time while the needle was in place 0.0003 to 0.00045 scopolamine hydrobromide solution was injected. The first dose of morphine was never to be repeated. In from one half to three quarters of an hour the memory test was applied, an object being shown the patient and then the same object was shown after twenty to forty minutes. If the patient remembered, a second injection of 0.00015—0.0003—0.00045 gram scopolamine was given according to the reaction of the patient. The third and succeeding injections followed, according to the memory tests, using 0.00015 or more of scopolamine as necessary. The essential point was the gradual scopolamine technic. It required from one and one half to two hours for the twilight zone to be reached, and if one had not that much time at his disposal, it was better not to at-

tempt to achieve amnesia. Instead of morphine one might use morphine meconate, although Gauss still used morphine hydrochloride, and his experience led him to do likewise. The Freiburg routine gave fair results as far as the mother was concerned, but there was a large percentage of children born with oligopnea and apnea, and, while in the hospital with proper attention, these babies were made to breathe, in many cases it required considerable effort and the method could not be recommended as a routine for general use. One must also realize that any drug as powerful as scopolamine could not be used as a routine measure when dealing with subjects of varying susceptibility. There were certain disadvantages in the conduction of the twilight sleep. It required the constant attendance of a physician, was not easy to carry out, required experience in the method, and considerable obstetrical knowledge, because the patient's outcries did not force interference where it might be indicated. The physician might find it difficult to secure a stable solution of scopolamine, and if an unstable one was used the results might be bad. Again, attention must be paid to the details of quiet and darkness. If the drugs had been improperly used, there was considerable danger to the child, the period of labor might be prolonged so as to endanger the life of the child, and slight overdosing might produce oligopnea. These conditions might not be serious in the hands of an expert, but might prove fatal unless proper measures were instituted. That there were also wonderful advantages in a properly conducted twilight sleep must also be admitted.

Dr. ROSS McPHERSON said that Dr. James A. Harrar and he had tried this form of amnesia in 115 cases, all of primiparae, in the wards of the New York Lying-In Hospital. Of these 115 cases amnesia was secured in seventy-five, partial amnesia in eleven, and in twenty-five there was no result. The four remaining were too far advanced in labor to derive any benefit from the drug. In nearly all the cases in which amnesia was secured, the treatment was started from three to seven hours before the termination of labor. There were no bad results that could be attributed to the use of the drug as far as mortality was concerned. One mother showed a rapid weak pulse (140 to 160) for two hours after delivery with slight delirium, but soon became normal and showed no ill effects the following day. There was no asphyxia attributable to the treatment and no hemorrhage post partum of moment. The average duration of labor was somewhat shorter in the cases receiving the sleep than in the average cases. They had noted in general a more rapid dilatation of the cervix than usual, with a somewhat slower second stage than was expected. This, however, had given rise to fewer lacerations of the perineum and might be hastened, when the delay seemed too long, by the use of pituitrin. The involution of the uterus and the puerperium were in all cases uneventful. It seemed that in sixty or seventy per cent. of cases they had a valuable method of abolishing a woman's recollection of pain in labor, provided that the described technic was carefully carried out, the cases carefully chosen, and the drugs reliable and stable, the last being of great

importance. The employment of these drugs in no way lessened the necessity for obstetrical skill, but rather increased it. In short, they had another valuable therapeutic aid in selected cases, but not a panacea for the pains of labor.

Dr. ABRAHAM RONGY said that one could not take every obstetrical case and tell the patient that she would go through a painless labor, for it was *not* a painless labor, but an attempt to get the patient into a state of amnesia. The patient did not remember the pain and hence was as well satisfied as though she had never gone through it. In their series of 230 cases, eighty per cent. of the children suffered from slight oligopnea. The first stage of labor was shortened, the second lengthened. There seemed to be no effect so far as hemorrhage was concerned. Amnesia was obtained in about eighty per cent. of the cases. In the event of delay of the head on the brim of the pelvis, pituitrin was used guardedly.

Dr. SAMUEL BANDLER thought that before going so far afield in discussing this subject it was well to ask, What did they gain by this treatment? It seemed that labor lasted longer than under normal conditions, even though the patient forgot that she had had pain. His experience with pituitrin had been large and he had never seen a case of asphyxia. He believed that morphine, hyosine, and scopolamine inhibited the action of pituitrin, and if one used these drugs the addition of pituitrin did not shorten the second stage of labor. With the use of pituitrin he now had one forceps case where formerly he had four or five. He felt assured that the oligopnea reported was due to morphine and hyosine.

Dr. JAMES A. HARRAR said that in his experience the general effect had been a rather more rapid dilatation of the cervix than usual, with a shortening of the first stage, followed in a certain number of cases by delay on the perineum. This resulted in a diminution of the number of perineal lacerations. Examination of the mother's urine before and after labor had not shown any bad effect on the kidneys. The involution of the uterus was not hastened in any way. In about 125 cases it was his impression that any deleterious effect on the baby was due to bad obstetrics rather than to the scopolamine. In their enthusiasm over the high percentage of successful anesias, they must not forget that attention must be paid to delay on the perineum; the fetal heart must be watched. Another point was the tendency to delirium as the head distended the vulva; this was probably due to the commotion resulting from moving the patient to the delivery table. The patient should be allowed to remain in bed. Primary inertia was a positive contraindication to this treatment and it was also to be avoided in cases in which operative maneuvers were anticipated, in ante partum bleeding, and in bad lung and kidney cases.

Dr. ROBERT L. DICKINSON, of Brooklyn, said it seemed to him that in the twilight sleep, the patient was under the influence of belladonna poisoning; she was belladonna crazy and excessively thirsty just when one wanted her most quiet. One could not sew up a perineum with the patient in such a restless condition. The time was coming when this

method would be applied to every primipara, but at present it belonged entirely to the skilled obstetrician and not to the public.

Dr. GEORGE P. SHEARS stated that some twelve or fifteen cases in which this treatment was used had come under his observation at the City Hospital, and the effect on the mother was wonderful; there was no subsequent hemorrhage, no relaxation, and the mothers recovered quickly, but the subject had its dark side, and that was the danger to the baby. The effect of the morphine, scopolamine, chloroform, and ether, in case it became necessary to apply forceps, was such that to tell anyone the baby was better under such conditions was too much of a strain on the imagination. When the second stage of labor was prolonged, there was increased danger. He did not believe that the dangers to the fetus could be entirely eliminated.

Dr. SAMUEL DRUSKIN recalled that Doctor Crile had pointed out the effects of insomnia, anxiety, and violence on the human economy, and they should not underrate the fact that by the use of this treatment the mother was spared the effect of a disagreeable experience. The pituitrin was somewhat weakened in its effect by the morphine, nevertheless it gave sufficient contraction to cause the expulsion of the child. They had used the treatment with safety in cardiac and kidney cases.

Dr. ROSS MCPHERSON said that in their series the average duration of labor had been shortened. He disagreed with what was said about early rising after childbirth, and felt convinced that early rising tended to subinvolution. He could not say that twilight sleep shortened the period of involution, but it certainly did not lengthen it.

Dr. SAMUEL J. SCADRON had had under observation about 250 cases in which the twilight sleep was used, and had seen no untoward effects on mother or child from the use of scopolamine. In most of the cases only one dose was given of morphine hydrochloride (grain $\frac{1}{8}$). Scopolamine had no cumulative effect. It appeared in the urine, fifteen to twenty minutes after the first injection. By the time the third dose was administered, the first had lost its effect. Doctor Scadron emphasized the danger of pituitrin in combination with morphine and scopolamine. In one series of cases, 15.2 per cent. of the infants were born with oligopnea, and he believed this was due to the pituitrin. Some of the patients receiving this treatment were permitted out of bed forty-eight hours after delivery, and many at the end of five days showed as great a degree of involution as did other patients after ten days in bed. This was attributable to the fact that patients did not experience the great exhaustion after labor that others did, and also to the daily exercises described by Doctor Knipe.

Dr. EPHRAIM K. BROWD's experience with pituitrin had convinced him that if the cervix was imperfectly dilated, its use was contraindicated and its effect on the child was dangerous. The employment of pituitrin was limited to the second stage of labor and to dystocia. Scopolamine would prove useful in cases of cardiac, renal disease, extreme anemia, or neurasthenia, or in cases in which anesthetics could be used. They had not been told how far this

method was applicable in cases of malpresentation or malposition.

Dr. ALFRED HELLMAN's visit to Freiburg had rapidly convinced him of the value of this treatment. There were several points that had impressed him and one of these was the rapidity of recuperation after labor. The mothers did not suffer from great exhaustion, and the uterus returned to normal much earlier. They had always been able to revive the babies, and Krönig believed that the delay was often valuable as it prevented breathing before the child was born.

Letters to the Editors.

A DENIAL FROM DOCTOR LYDSTON.

CHICAGO, February 1, 1915.

To the Editors:

In connection with a sensational report of an operation under the so called twilight sleep, a statement has appeared in various newspapers purporting to be by myself, which would imply not only that I was present at the operation but that I unequivocally endorsed the method. The following appeared in the *New York World*, for January 28, 1915: "After this demonstration," Dr. G. Frank Lydston said, "twilight sleep, for men will become common. The use of this anesthetic will no longer be limited to childbirth cases, but women as well as men will benefit by it generally. This operation was important, and I am glad to express my professional opinion that it was completely successful."

I desire to state, first, that I was not present at the operation aforesaid; second, I have never been interviewed upon the subject, nor up to the present moment have I expressed for publication any opinion of the so called twilight sleep; third, my present attitude toward the revival and sensational nomenclature of the employment of scopolamine-morphine hardly would comport with the sentiments expressed in the statement falsely attributed to me.

G. FRANK LYDSTON.

A SOCIETY FOR THE STUDY OF GERIATRICS.

NEW YORK, February 3, 1915.

To the Editors:

I wish to come in touch with physicians interested in the care and treatment of the aged and in studies dealing with senescence, for the purpose of forming a geriatric society. I will greatly appreciate the publication of this request in your JOURNAL and will be grateful to other journals which copy it.

I. L. NASCHER, M.D.

103 WEST EIGHTY-EIGHTH STREET.

A SHOTGUN IN RHINITIS?

ELMIRA, N. Y., February 8, 1915.

To the Editors:

In the article entitled Nose, Throat, and Ear Conditions, by Dr. Rufus B. Scarlett, of Trenton, N. J., in your issue for February 6th, occurs the following:

A satisfactory combination is the one suggested by Dr. S. MacCuen Smith, of Philadelphia, which is made up as follows:

R Atropine sulphate,	gr. 1-600;
Strychnine sulphate, }	aa gr. 1-240;
Arsenous acid,	
Morphine sulphate,	gr. 1-100;
Quinine sulphate,	gr. 1-10;
Powdered camphor,	gr. $\frac{1}{4}$.

M. ft. Tabella. Sig.: One tablet is taken every half hour until dryness in the throat is noted.

In view of the new narcotic law, and in the interest of humanity in general, why the five adjuvants, so to speak? Under what rule or rhyme should we administer minute doses of arsenic every half hour? The atropine would work nicely, and be all through before the arsenic would get a start—but what is the purpose of the arsenic?

A rather formidable blunderbuss with which to attack so common and catching an ailment as acute rhinitis! But then, I suppose, there's a reason.

WILLIAM BRADY, M.D.

WHOOPIING COUGH.

FORT PIERCE, FLA., January 31, 1915.

To the Editors.

If you can induce your readers to give hexamethylenamine a fair test, they will quit experimenting with the drug supply and, until the people learn enough to demand immunization, stick to this drug. The idea is, that by the use of suitable doses, grain one half to grains five, given in large quantity of water, and to the limit of tolerance of the urinary tract, we can inhibit the growth of the bacterium also the production of its toxin, and thus relieve symptoms without preventing saturation immunity.

As this organism has exceedingly slight lytic powers, to produce immunization the treatment must be continued in smaller doses for some months. As to use doses sufficient to cause abortion through its bronchial elimination might injuriously irritate the kidney, so I only inhibit.

C. G. ROEHR, M.D.

ETHER INSUFFLATION ANESTHESIA.

PLAQUEMINE, LA., February 5, 1915.

To the Editors.

In his article on Ether Insufflation Anesthesia in your JOURNAL for January 30th, Doctor Evans states: "The intrapharyngeal method of insufflation is a modification of the intratracheal, and was developed in 1911. This method was devised by Dr. Karl Connell, also of New York, as a result of his search, etc."

In 1895, Dr. Edmond Souchon, then professor of anatomy and clinical surgery, Tulane University of Louisiana, devised or invented, as he states, an apparatus for injecting the anesthetic vapor into the lower pharynx, through a tube passed through the nose into the lower pharynx. An illustration of the apparatus is given in *Surgery by American Authors*, edited by Dr. Roswell Park, II, page 215. For a complete description of the apparatus, Doctor Souchon refers to *Medical News* for November 23, 1895.

As an intern in the Charity Hospital of Louisiana, New Orleans, in Doctor Souchon's service, I administered anesthetics in quite a number of face operations, such as hare-lip, cleft palate, etc., by this method. Doctor Souchon demonstrated his method and apparatus to his classes every session. He maintained for it the most important advantages claimed by Doctor Evans for insufflation anesthesia, and although his apparatus was not as perfected as Doctor Connell's, he developed the idea and put it to practical use in 1895.

ADRIAN A. LANDRY, M.D.

WHY NOT PRESCRIPTIONS IN ENGLISH?

NEW YORK, January 23, 1915.

To the Editors:

Permit me to answer this question in your editorial article of today: There can be no objection when physicians who do not know Latin, write prescriptions in English, but any one who can do so, will prefer to write them in Latin, because this bears the stamp of intercommunity, simplicity, and internationality and is of importance when medical writings are read by foreigners or translated into other languages.

Bismarck said on a certain well known occasion: "One who does not know Latin hates it." A. ROSE, M.D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Acute General Military Tuberculosis. By Professor DR. G. CORNET, Berlin and Reichenhall. Translated by F. S. TINKER, B.A., M.B., B.C., M.R.C.S., L.R.C.P.; Late Senior Resident and Ophthalmic Assistant to the Royal Infirmary, Liverpool. New York: Paul B. Hoeber, 1914. Pp. viii-107. (Price, \$1.50.)

Tuberculosis in its many forms is always a subject of interest to the physician, whether he is directly engaged in its treatment or not, and its understanding is a matter of such great importance that any contribution to our knowledge must be more than welcome. Although there may be reason to take exception to certain of the ideas promulgated by Cornet in his many writings on tuberculosis, it must be conceded that he is one of our most capable observers and that he has graced by his ability whatever phase of the problem he has approached. In the present treatise on the single aspect of the acute military form of the disease, he has not failed us, for he has presented a concrete and sequential account of this form, beginning with the several factors in its etiology and taking up in order the pathological anatomy, the symptoms, the course, duration, and result, the diagnosis, prognosis, prophylaxis, and therapy. It is interesting to note that he believes the danger in this form of tuberculosis to be due to the overwhelming of the body with the toxins of tuberculosis rather than to the inability of the many individual small tubercles to heal. He also accepts it as probable that in certain rare cases recovery has occurred with ultimate complete healing of the lesions, so that it would be wise to make one's prognosis guarded and to preserve a hopeful attitude until a fatal outcome was an absolute certainty in any given case. While the work is Cornet's, we cannot refrain from a word of commendation for Tinker who has rendered the original German into attractive English. Not the least valuable feature of the work is the extensive bibliography which occupies over ten pages.

Case Histories in Obstetrics. Groups of Cases Illustrating the Fundamental Problems Which Arise in Obstetrics. By ROBERT L. DE NORMANDIE, A.B., M.D., Assistant in Obstetrics. Harvard Medical School; Physician to Out-Patients, Boston Lying-in Hospital; Assistant in Gynecology, Boston Dispensary. Boston: W. M. Leonard, 1914. Pp. 516.

The basis of teaching the clinical branches of medicine is the presentation of cases, but even in a large hospital it is not always possible to have the required material on hand. For that reason this book can be of a great aid to the study of obstetrics. There is no doubt that the ultimate application of medical knowledge is to the individual case and such a volume as this should therefore be of much value. It does not deal to much extent with the causes of the conditions presented, but it brings out well how to use subjective symptoms in diagnosis, and also deals clearly with the methods of treatment employed.

Chirurgische Diagnostik in Tabellenform für Studierende und Ärzte. Von Dr. med. J. CEMACH, Wien, 100 Tabellen, 10 Seiten fortlaufender Text, und 440 schwarze und farbige Abbildungen auf 112 Tafeln. München: J. F. Lehmann, 1914. Pp. xvi-7. (Price, Marks 14.)

The author has attempted to adapt to surgery the plan already successfully tried in general medicine, of a combination of short text arranged schematically, and illustrations in the form of photographs, diagrams, and x-ray pictures. The illustrations are on pages opposite the text; for example, on a single page opposite to a schematic description of the history, symptoms, physical examination, and diagnosis of tumors of the scalp, are six small photographs of actual cases showing very clearly the appearances of the commoner forms of these tumors. By this method the differential diagnosis of each variety of tumor is firmly established, both by the description and the actual appear-

ance. The whole realm of regional surgery is covered in this way as far as practicable, including such special regions as the genitourinary and respiratory tracts. The book offers a new and valuable addition to the textbooks available to the student and beginner in surgery, and should have precedence over the ordinary compendium on account of the valuable arrangement for purposes of differential diagnosis and the excellent and numerous illustrations. Works of this kind should be encouraged, as they help to teach the student the habit of considering all possibilities before making a diagnosis. The author in this particular book has brought the idea of diagnosis "by exclusion" still more prominently before the reader and deserves great praise for his painstaking work.

Fever, Its Thermotaxis and Metabolism. By ISAAC OTT, A. M., M. D., Professor of Physiology Medico-Chirurgical College, Philadelphia, Member of American Physiological Society, Ex-President of American Neurological Association, etc. New York: Paul B. Hoeber, 1914. Pp. 166. (Price, \$1.50.)

This small book consists of three lectures given to students. In the first the question of thermotaxis, or heat regulation, is considered. According to Ott this depends upon four nervous centres; two basal thermogenic centres—the corpus striatum and the chief one, the tuber cinereum—and two inhibitory cerebral centres—the cruciate and the sylvian. In the second lecture, thermolysis, or heat dissipation is discussed. This is supposed to be carried on by the polyneic centre in the tuber cinereum, the vasomotor centre, and the sudorific centres. The third lecture is given up to the study of metabolic changes occurring as the result of fever. These lectures are interesting in that they give clearly and in small compass the most recent facts and theories concerning this important question.

Glaucoma. A Symposium Presented at a Meeting of the Chicago Ophthalmological Society, November 17, 1913. Edited by WILLIS O. NANCE, M. D., President Chicago Ophthalmological Society (1913); Ophthalmic Surgeon, Illinois Charitable Eye and Ear Infirmary; Former Oculist and Aurist, Cook County Hospital; etc., and WESLEY HAMILTON PECK, M. D., President Chicago Ophthalmological Society (1914); Former Professor Ophthalmology, Chicago Eye, Ear, Nose, and Throat College; etc. Chicago: Chicago Medical Book Company, 1914. Pp. 151. (Price, \$1.50.)

This book presents five excellent papers presented in a symposium at a meeting of the Chicago Ophthalmological Society, with their discussions. These deal with the etiology and classification of glaucoma, its pathology, non-surgical measures for its relief, trephining, and other operations in a concise and clear manner, and together form an excellent book on the subject.

The Tonsils, Faucial, Lingual, and Pharyngeal, with some account of the Posterior and Lateral Pharyngeal Nodules. By HARRY A. BARNES, M. D., Instructor in Laryngology, Harvard Medical School; Surgeon in the Department for Diseases of the Nose and Throat, Boston Dispensary; Assistant Laryngologist, Massachusetts General Hospital. Illustrated. St. Louis: C. V. Mosby Company, 1914. Pp. 168. (Price, \$3.)

This short work gives in concise form the anatomy, physiology, pathology, and surgery of the tonsils. It is scientific throughout and at the same time the practical part is given due prominence so that it is equally valuable to one seeking knowledge of the fundamental peculiarities of this important organ as well as to one looking for instruction in the various operative methods for its removal. The illustrations are excellent and have the great advantage that they are all original and represent the author's own investigations and surgical work in this field. The reader feels that the preparatory work necessary to writing such a book has been well done and that the author's experience in teaching students has fitted him to the task of preparing a concise and clear text for students and beginners in tonsil surgery. Not the least valuable of the ten chapters is the last one devoted to complications and sequelae of operations on the tonsils. One here finds useful points in the prevention of hemorrhage and postoperative deformities—the two great dangers in the unskillful performance of amygdalectomy.

Interclinical Notes.

The *Journal A. M. A.*, an acknowledged authority on what it might call medic, chemic, and surgic matters, takes its orthography in part from a society devoted to the study of chemistry. It has no authority, however, except perhaps its own inner consciousness, for deforming the spelling of a dead language. We find in the opening communication of the issue for February 13th, pyorrhea alveolaris, and Endameba buccalis, examples of a diphthongophobia which refuses to respect even the tomb of a classical tongue.

Despite the solemn asseverations of American war correspondents that atrocities are not to be discovered on the European fields of battle, Herman Bernstein, in the *Sun* for February 14th, declares that the Jews of Poland are being subjected to the most horrible persecution, not only by Russian and German troops, but even by their own political leaders. It is hard to believe Mr. Bernstein when he goes on to particularize that "Polish physicians refused to render medical aid to Jews, Polish druggists refused to sell medicine to the Jewish sick, Polish hospitals refused to admit Jewish patients, however critical their condition."

We are so accustomed to hearing as the sole cause of prostitution the insufficient wages paid to young women—that this is doubtless an important factor—that it is somewhat startling to read in the *Survey* for February 6, 1915, the statement by a young woman referred to as "a goner," After a reference to wages and hard, dispiriting work, she remarks: "And then you know, this life, it's—it's—it's kind of sport. There's always something doing. When I sewed shirt waists them four years, I was dead all the time. Never saw anything or anybody; just worked, worked, worked, all the time. I felt like an old woman—and me only twenty-two now!" Cynics have said that prostitution, for most of the women engaged, is a distinct rise in the social scale. At all events, we too seldom hear of the significant factor in filling the ranks upon which this young woman lays emphasis. Religious philanthropists suppress it; but those who know that poor young women have souls and imaginations should not forget. If employers will not pay wages that allow a margin for normal pleasures, scientific charity might provide the latter free.

In commenting on the fact that two former professors at Louvain are to lecture henceforward at Harvard, the *Outlook* for February 10th states that exchange of professors is no new thing, having been in vogue among Mohammedan universities for over eight hundred years. It is new with us, because our colleges used to be strictly denominational and the teaching was preeminently of the "canned" variety. We think that our medical schools have always been glad to welcome professors from other faculties, when the exigencies of practice did not prevent. In this *Outlook* there is a handsome tribute to Shaw, a spirit as alien to that of the periodical as can well be imagined.

Physicians play prominent roles in the *Popular Science Monthly* for February, 1915. Dr. Alfred Goldsborough Mayer writes A History of Tahiti, Dr. Andrew H. Palmer on Some Popular Misconceptions Concerning the Weather, Dr. Fielding H. Garrison brings to general attention the Ductless Glands, Internal Secretions, and Hormonic Equilibrium, and the distinguished laryngologist and medical litterateur, Dr. Jonathan Wright, discusses the Evanescence of Facts. There is a reproduction of the Sargent portrait of Sir William Osler and of Professor William S. Thayer's address, made when the portrait was presented to Johns Hopkins Hospital.

Clara E. Laughlin writes a powerful indictment of our civilized treatment of illegitimate babies and their mothers in *Pearson's Magazine* for February, 1915, and shows how our attitude might well be modified to the benefit of society and the race generally. The Flareback in Exaggerated Advertising, by Arno Dosch, might be read with advantage by some of our clientele, which is not made up entirely of physicians. *Pearson's* contains some mightily interesting reading for doctors, who from the heights of their ethical purity and general superiority should occasionally survey, even with horror, the naughty civilization of which they form part.

Meetings of Local Medical Societies.

MONDAY, February 22d.—Therapeutic Club, New York; Medical Society of the County of New York; Psychiatric Society of Ward's Island; Poughkeepsie Academy of Medicine.

TUESDAY, February 23d.—New York Psychoanalytic Society; New York Dermatological Society; Metropolitan Medical Society of New York City; Buffalo Academy of Medicine (Section in Pathology); New York Medical Union (annual); New York City Riverside Practitioners' Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York; Woman's Hospital Society, New York.

WEDNESDAY, February 24th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Society of Internal Medicine; Schenectady Academy of Medicine.

THURSDAY, February 25th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Ex-Intern Society of Seney Hospital, Brooklyn; Medical Union, Buffalo; Hospital Graduates' Club, New York; New York Physicians' Association.

FRIDAY, February 26th.—New York Society of German Physicians; New York Clinical Society (annual); Manhattan Medical Society; Brooklyn Society of Internal Medicine; Italian Medical Society of New York; Academy of Pathological Science, New York; Hospital Graduates' Club, Brooklyn.

SATURDAY, February 27th.—New York Medical and Surgical Society; West End Medical Society; Lenox Medical and Surgical Society.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending February 10, 1915:

Anderson, J. F., Surgeon. Directed, on the request of the health authorities of the State of Virginia, to proceed to Richmond for the purpose of conferring with the State Commission of Health, and to deliver two lectures on public health subjects on February 9 and 10, 1915. **Browne, R. W.**, Acting Assistant Surgeon. Granted three days' leave of absence from February 9, 1915. **Bryan, W. M.**, Passed Assistant Surgeon. Granted one day's leave of absence on account of sickness, February 5, 1915. **Chapin, C. W.**, Passed Assistant Surgeon. Relieved from duty at San Juan, P. R., and directed to proceed to New Orleans, La., and report to the medical officer in charge of plague eradication measures for duty. **Clark, Taliaferro**, Surgeon. Directed, on request of the Indiana Sanitary and Water Supply Association, to attend a meeting of that association at Indianapolis, Ind., February 23 and 24, 1915, and deliver an address on a public health subject. **Collins, G. L.**, Passed Assistant Surgeon. Directed to proceed to Valparaiso, Indiana, and report to Surgeon T. Clark for duty in connection with a sanitary survey of schools and the determination of the physical and mental condition of the school children of Porter County, Indiana. **Frank, Leslie C.**, Sanitary Engineer. Directed to proceed to Baltimore, Md., for the purpose of consulting with the Baltimore Sewage Commission in regard to the installation of certain apparatus for the oxidation of sewage. **Grimm, R. M.**, Passed Assistant Surgeon. Directed to proceed, at such times as may be necessary, to places in South Carolina, outside of Spartanburg, for a study of pellagra and the selection of patients for admission to the pellagra hospital at Spartanburg. **Gwyn, M. K.**, Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Southport, N. C., and assume charge of the Cape Fear quarantine station. **Harrington, F. E.**, Assistant Epidemiologist.

Directed, on request of the State Board of Health of North Carolina, to proceed to that State for the purpose of advising in respect to a sanitary survey of Orange County and instructing the field workers in relation thereto, also to stop at Raleigh, N. C., for conference. **Knight, C. P.**, Passed Assistant Surgeon. Granted six days' leave of absence on account of sickness from February 1, 1915. **Lavinder, C. H.**, Surgeon. Authorized to deliver a course of lectures at the New York Post-graduate Medical School. **Mathewson, H. S.**, Surgeon. Directed to assume charge of the Marine Hospital at Portland, Me., in addition to his present duties. **Parker, Herman B.**, Passed Assistant Surgeon. Granted twelve days' leave of absence from January 6, 1915, on account of sickness. **Spratt, R. D.**, Passed Assistant Surgeon. Granted one month's leave of absence on account of sickness from January 11, 1915. **Von Ezdorf, R. H.**, Surgeon. Directed to proceed to such points in the Southern States as may be necessary in order to make malaria surveys and to collect specimens and other data. **Watkins, J. A.**, Assistant Surgeon. Directed to report at Washington, D. C., Wednesday morning, February 10, 1915, for conference with interior and labor department officials. **Wilbert, M. I.**, Technical Assistant. Authorized to attend the meeting of the Council on Pharmacy and Chemistry of the American Medical Association at Chicago, Ill., February 12 and 13, 1915.

Board Convened.

Board of medical officers convened to meet at the Marine Hospital, Stapleton, N. Y., Wednesday, February 10, 1915, for the medical survey of an officer of the United States Coast Guard. Detail for the board: Senior Surgeon G. W. Stoner, chairman; Passed Assistant Surgeon C. P. Knight, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending February 13, 1915:

Anderson, Everett A., First Lieutenant, Medical Reserve Corps. After arrival in the United States, and upon expiration of leave of absence, will proceed to Fort Leavenworth, Kansas, and report to the United States Military Prison for duty. **Anderson, John B.**, First Lieutenant, Medical Corps. Relieved from duty with the Second Division and will proceed to Fort Sam Houston, Texas, and report to the commanding officer of that post for duty. **Bowman, Madison H.**, First Lieutenant, Medical Reserve Corps. After arrival in the United States, and upon the expiration of leave of absence, will proceed to Fort McPherson, Georgia, and report to the commanding officer for duty. **Bull, Raymond C.**, First Lieutenant, Medical Corps. Will proceed to the Walter Reed General Hospital, D. C., and report in person to the commanding officer for observation and treatment. **Christensen, Waldemar A.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Huachuca, Arizona, and will proceed to Douglas, Ariz., for station and duty. **Christian, Sanders L.**, First Lieutenant, Medical Reserve Corps. Resignation of commission has been accepted by the President, to take effect February 6, 1915. **Connor, Clarence H.**, Captain, Medical Corps. Now at San Francisco, Cal., will report in person to the commanding officer, Letterman General Hospital, Presidio of San Francisco, Cal., for duty. **Cooper, Alexander T.**, Captain, Medical Corps. After arrival in the United States, and upon expiration of leave of absence, will report to the commanding officer, General Hospital, Fort Bayard, New Mexico, for duty. **Denton, John F.**, First Lieutenant, Medical Reserve Corps. Upon relief from duty at Fort McPherson, Georgia, will proceed to his home and upon arrival there will report by telegraph to the Adjutant General of the Army; leave of absence for twenty-seven days is granted upon arrival home. **Freeman, Paul L.**, Captain, Medical Corps. After arrival in the United States, and upon expiration of leave of absence, will proceed to the Walter Reed General Hospital, D. C., and report to the commanding officer for duty. **Haines, Edgar F.**, First Lieutenant, Medical Reserve Corps. Will report to the commanding officer of the Southern Department for assignment to duty, with sta-

tion at Fort Snelling, Minnesota. **Lull, George F.**, First Lieutenant, Medical Corps. Relieved from duty at the Walter Reed General Hospital, D. C., to take effect at such time as will enable him to comply with order, and will proceed to New York city, and report to the commanding officer, Twenty-ninth Infantry, for duty with that regiment and will proceed to the Canal Zone; leave of absence for one month is granted. **McCornack**, Condon C., Captain, Medical Corps. After arrival in the United States, and upon expiration of leave of absence, will proceed to Fort D. A. Russell, Wyoming, and report to the commanding officer for duty with Ambulance Company No. 1. **Powell, William**, Captain, Medical Corps. Now on temporary duty in the Southern Department, is relieved from duty at the Presidio of San Francisco, and assigned to station at Fort Des Moines, Iowa. **Seaver, Edwin P.**, Jr., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Rodman, Massachusetts, and will proceed to his home; upon arrival will report by telegraph to the Adjutant General of the Army. **Snyder, Henry D.**, Lieutenant Colonel, Medical Corps. Detailed as a member of the examining board at Ancon, Canal Zone. **Weed, Frank W.**, Captain, Medical Corps. After arrival in the United States, and upon expiration of leave of absence, will proceed to the Presidio of San Francisco, Cal., and report for duty to the commanding officer. **Woodbury, Frank T.**, Major, Medical Corps. Relieved from duty at Columbus Barracks, Ohio, and will proceed to Fort Potter, New York, and report to the commanding officer of the First Battalion, Twenty-ninth Infantry, and will proceed with the Twenty-ninth Infantry to the Canal Zone. **Wyeth, John A.**, First Lieutenant, Medical Reserve Corps. Tenders resignation from this corps, which has been accepted by the President to take effect February 6, 1915.

So much of Paragraph 19, S. O. 28, February 3, 1915, War Department, as relates to Captains Howard McC. Snyder, Alexander D. Parce, Norman L. McDiarmid, and Joseph Casper, M. C., is amended so as to direct them to proceed to Douglas, Ariz., for duty, instead of to Texas City, Texas, as directed in said order.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending February 13, 1915:

Abeken, F. G., Passed Assistant Surgeon. Detached from the Naval Station, Guam, and ordered to the Supply. **Baker, M. C.**, Passed Assistant Surgeon. Ordered to the Naval Station, New Orleans, La. **Brister, J. M.**, Surgeon. Detached from the *Utah* and ordered to the Atlantic Reserve Fleet. **Calver, G. W.**, Assistant Surgeon. Detached from the Supply and ordered to the Naval Station, Guam. **Carpenter, D. N.**, Surgeon. Detached from the Bureau of Medicine and Surgery, Washington, D. C., and ordered to the Naval Training Station, Newport, R. I. **Chambers, William**, Passed Assistant Surgeon. Ordered to the Naval Station, Olongapo. **Cornett, H. V.**, Assistant Surgeon. Ordered to Naval Station, Canacao. **George, C. M.**, Passed Assistant Surgeon. Detached from the Pacific Torpedo Flotilla and ordered home to await orders. **Hidden, M. B.**, Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Hospital, Canacao, and ordered to the *Palos*. **Hoen, W. S.**, Surgeon. Detached from the Pacific Reserve Fleet and ordered to the *Colorado*. **Johnson, M. K.**, Surgeon. Ordered to the *Montana*. **Lehrfeld, Louis**, Assistant Surgeon. Resignation accepted, effective on January 29, 1915. **McCullough, F. E.**, Surgeon. Detached from the Naval Training Station, Newport, R. I., and ordered to the Naval Training Station, San Francisco. **Murphy, J. F.**, Surgeon. Detached from the *Montana*, and ordered home to await orders. **Odell, H. E.**, Surgeon. Detached from the Naval Station, Canacao, and ordered to the Naval Hospital, Yokohama, Japan. **Porter, F. E.**, Passed Assistant Surgeon. Detached from the Naval Hospital, Yokohama, Japan, and ordered to the *Cincinnati*. **Post, D. C.**, Assistant Surgeon. Detached from the *Palos* and ordered to the *Quiros*. **Pryor, J. C.**, Surgeon. Detached from the *North Dakota* and ordered to the *Montana*, connection Regiment Marines. **Roddiss, L. H.**, Assistant Surgeon. Ordered to Naval Hospital,

Canacao. **Schmidt, L. M.**, Passed Assistant Surgeon. Detached from the *Louisiana*, and ordered to the *Albatross*, connection Regiment Marines. **Thompson, J. C.**, Surgeon. Ordered to Navy Recruiting Station, San Diego, Cal. **Valz, E. V.**, Passed Assistant Surgeon. Ordered to the Naval Hospital, Portsmouth, N. H. **Wilson, H. D.**, Surgeon. Ordered to the *Utah*. **Ziegler, J. G.**, Passed Assistant Surgeon. Detached from the *West Virginia* and ordered to the Pacific Torpedo Flotilla.

Births, Marriages, and Deaths.

Married.

Burket—Ost.—In Quincy, Ill., on Thursday, February 4th, Dr. Robert S. Burket, of Denver, Colo., and Miss Hazel Hunt Ost. **Dayton—Albert.**—In Gwynedd, Pa., on Wednesday, February 10th, Dr. Hughes Dayton and Miss Amy Edna Albert. **Hedges—Taylor.**—In Plainfield, N. J., on Saturday, January 30th, Dr. Ellis W. Hedges and Mrs. Kate S. Taylor.

Died.

Baldrige.—In Chicago, Ill., on Tuesday, February 2d, Dr. Samuel T. Baldrige, aged fifty-three years. **Brown.**—In Rockford, Ill., on Friday, February 5th, Dr. George W. Brown, aged ninety-five years. **Caney.**—In Vincennes, Ind., on Saturday, January 30th, Dr. Patrick H. Caney, aged fifty-five years. **Carney.**—In Baltimore, Md., on Saturday, February 6th, Dr. Thomas Carney, of Schenectady, N. Y. **Carruth.**—In Wilson, Ia., on Friday, February 5th, Dr. A. A. Carruth, aged seventy-seven years. **Chapoton.**—In Detroit, Mich., on Saturday, February 6th, Dr. Edmund A. Chapoton, aged sixty-two years. **Comfort.**—In Milwaukee, Wis., on Sunday, January 31st, Dr. Aaron Ivans Comfort, aged eighty-seven years. **Dana.**—In Morrisville, Pa., on Monday, February 1st, Dr. Robert Schoemaker Dana, aged eighty-two years. **Davison.**—In Lakewood, N. J., on Tuesday, February 2d, Dr. John F. Davison, aged forty-five years. **Eagon.**—In Dallas, Texas, on Saturday, January 30th, Dr. Sampson Eagon, aged seventy-nine years. **Finnimore.**—In Potsdam, N. Y., on Sunday, February 7th, Dr. Daniel W. Finnimore, aged fifty-nine years. **Ford.**—In Chester, Pa., on Thursday, February 4th, Dr. Edward F. Ford. **Foster.**—In Scottsburg, N. Y., on Sunday, January 31st, Dr. Daniel H. Foster, aged seventy-nine years. **Goetchius.**—In Duluth, Minn., on Tuesday, February 2d, Dr. H. V. Goetchius, aged sixty-seven years. **Hall.**—In Camden, Me., on Tuesday, February 2d, Dr. William Henry Hall, of Saratoga Springs, N. Y., aged seventy-five years. **Hill.**—In Buffalo, N. Y., on Wednesday, February 3d, Dr. Frank E. Hill, aged fifty-three years. **Jones.**—In Chicago, Ill., on Wednesday, January 27th, Dr. Montague J. Jones. **Keen.**—In Hamilton, Va., on Sunday, January 31st, Dr. Thomas F. Keen, aged fifty-eight years. **Kelleher.**—In Chicago, Ill., on Saturday, January 30th, Dr. Michael W. Kelleher, aged fifty-nine years. **Kelly.**—In Boston, Mass., on Monday, February 8th, Dr. William D. Kelly, aged thirty-five years. **Langmaid.**—In Brookline, Mass., on Wednesday, February 3d, Dr. Samuel Wood Langmaid, aged seventy-eight years. **Laughlin.**—In Evansville, Ind., on Friday, February 5th, Dr. E. D. Laughlin, aged eighty-seven years. **Little.**—In Burlington, Ia., on Saturday, January 30th, Dr. George B. Little, aged sixty-four years. **Manchester.**—In Grafton, N. H., on Thursday, January 28th, Dr. Frank C. Manchester, aged fifty-three years. **Mersfelder.**—In Canal Dover, Ohio, on Sunday, January 31st, Dr. Frederick Mersfelder, aged sixty-eight years. **Potter.**—In Indianapolis, Ind., on Monday, February 8th, Dr. Theodore Potter, aged fifty-four years. **Reynolds.**—In Pleasure Ridge Park, Ky., on Thursday, February 4th, Dr. Dudley S. Reynolds, aged seventy-two years. **Swaving.**—In Portsville, Pa., on Wednesday, December 30th, Dr. John H. Swaving, aged forty-eight years. **Vanatta.**—In Lena, Ill., on Monday, February 1st, Dr. Harry B. Vanatta, aged thirty-nine years. **Waller.**—In Martinsville, Va., on Tuesday, February 2d, Dr. George E. Waller, aged seventy-seven years. **Winfrey.**—In Kansas City, Mo., on Saturday, January 30th, Dr. Caleb Winfrey, aged ninety-one years.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843.

VOL. CI, No. 9.

NEW YORK, SATURDAY, FEBRUARY 27, 1915.

WHOLE No. 1891.

Original Communications.

THE NATURE AND PATHOGENESIS OF EPILEPSY.

BY L. PIERCE CLARK, M.D.,
New York.

INTRODUCTION.

The modern trend of investigation of the neuroses by psychoanalytic methods elaborated by Freud and his school, has made the neuroses clinically so much more rational and comprehensible in their individual evolution, that it is but a step to apply such methods to the interpretation of the psychoses. In the study of the latter many things previously treated in a bizarre manner by psychiatrists become of pressing moment. For instance, often the heretofore seemingly silly and nonsensical speech and behavior of the insane have been found to lead directly to the latent content of the psychosis; which, when completely analyzed, gives a better understanding of the mechanism of both the benign and malignant mental disorders. Considerable study has now been made along these latter lines. Such researches have been chiefly carried on—in this country—by Hoch and the Ward's Island school. They have made us aware of the enormous importance which the real unconscious plays in the genesis of all forms of delusions and hallucinations. In following these psychiatric studies, especially those upon the malignant psychoses, I was impressed with the possible use of some of the psychiatric principles so employed in the study of the epileptics. On the one hand, intensive analysis of the psychoneuroses, such as the hysterias and obsessive neuroses, wherein the emotional repressed or substituted affect acting as the inciting agent, pointed the way clearly to the study of various types of psychogenic convulsive episodes. On the other hand, the psychotic studies made obvious the importance of taking account of the infantile unconscious, if one were to penetrate still more deeply into the biological mental reactions of genuine epilepsy. Obviously the former study of the neuroses reached a certain depth or level of the psyche at which it was often possible to recover from the fringe of consciousness the repressed or buried affect which, when so brought into full consciousness, relieved many so called affect epilepsies; but still there remained for solution much of the mystery of the mechanisms of the essential fit of ordinary epilepsy. At this point studies of deliria and mental excitements in the epileptic states began to show how deeply within the infantile unconscious

the motivation of the fit really originates. The clever suggestion of Ferenczi, that the fit at heart represented a regression to the infantile period of wish fulfillment, and the careful study of a single case of an epileptic delirant by MacCurdy—in which a number of different unconscious settings or strivings for union with God as the father, and the final assumption of godship itself, were shown to be the libidinous striving in the epileptic state—carried us still more definitely into our subject. In brief, such suggestions and studies made clear the importance of a much more intensive study of essential epilepsy in its different manifestations. The most natural line of approach to the task seemed to be by the way of a preliminary study of the personality makeup of the epileptic before the seizures develop. When the disclosures from such investigation show certain definite defects then one should follow up such defects to the unconscious by way of the dreams and the fits themselves where possible. To the fulfillment of such a purpose this study was primarily undertaken. How well the task has been performed the reader may judge. If in some measure the study shows the great importance of a psychogenetic mechanism of the fit, in which organic lesions in the epileptic brain permit or allow the numerous alleged exciting agents to bring forth the fit phenomena and to set in action the final and complete elaboration of the malady, I shall rest content.

In explanation of the terms employed in this study, the term libido—intensive striving, desire or craving—is used in its broadest sense as expressing sexuality in all that directly or indirectly concerns the generation or maintenance of a new generation. The significance of the dream is taken in the true sense of Freud, that it contains a striving for wish fulfillment and that its essential nucleus is a sexual desire in its broadest sense. The dream, or the unconscious strivings in the fit, is always infantile and illogical in our adult conscious sense and requires a wide exercise and training of the mind before the former may be rightly appreciated in its true significance. Thus the unconscious striving of the epileptic to return to the life within the mother as before birth is absolutely inconceivable to the ordinary mind; even less can one feel that such a life carries with it all the pleasurable content the epileptic's unconscious state seems to imply. For the analysis of the birth dreams and the classic descriptions of metroeroticism (*Mutterlieb*) one should read the writings of Stekel. The occurrence and continuance of different types of anal and urethral eroticism in the after emotional life, especially in neurotic and psychotic individuals, needs to be fully appreciated before one may rightly understand many of the

varied manifestations of the conscious and unconscious sexuality of the epileptic. For an excellent outline of the subject the reader may gather the essential points from Freud's *Three Contributions to the Sexual Theory*. When one has these subjects and their explanations well in mind it is easy to understand the psychosexual role which certain principles of physical therapy, such as packs, baths, massage, and colonic flushings, play in the treatment of the neurotic. Of prime importance for this study is the reader's comprehensive understanding of the genetic development of the child's emotional life from its adoring physical and emotional attachment to the mother to the final normal adult heterosexual attachment.

It has been thought, and is still frequently repeated, that epileptics are homosexuals. Careful analysis fails to prove this contention. In the sense of Hirschfeld's designation and descriptions of homosexuality I know of no recorded authentic case of true inversion among epileptics. The latter may have many characteristics of homosexuals and in their multiform expressions of infantile psychosexual life show masked or psychic homosexual traits. Furthermore, rightly viewed, epileptics are not strictly speaking libidinous individuals; it is only that most frequently their whole attitude at adult expression of life is engrossed in an infantile pattern of sexuality, not that their sexuality in itself is enormous. The sum total of their undeveloped and unrequited energies often seeks expression in crude sexuality, in crass immaturity and egotism, which makes them seem like a class which possesses unbounded sexuality. Finally, one should remember that homosexuality is something quite adult in sexual function, and therefore one would not expect to find it in the psychosexual inferiority of the epileptic as a type.

THE ARGUMENT.

In this study it is contended that neither the present accepted pathological anatomy of marginocortical gliosis nor its postulated pathogenesis, a still earlier chemico-toxic state, is really sufficiently constant in variation and extent to account for essential epilepsy; that one must seek for an alteration in some more fundamental process of life, absence of which shall be sufficiently dynamic to cause the mechanism of the epileptic fit in all cases of the genuine disease; that a definite defect in the emotional or affective side of the mind in epileptics is constant though variable; that the fit is a striving for expression of the libidinous energies in the unconscious; that the fit is therefore a libidinous outlet of the primal sexual energies and should be considered as essentially a pathological functioning of the unconscious; that this state is due to a condition of mental infantilism caused by or coincident with a libidinous fixation in the earlier stages of psychosexual development of the epileptic; that the most constant fixation defect is one of more or less rigid attachment to the parent of the same sex as the epileptic himself; that other libidinous objects of attachment or fixation may be shown at the same time to be narcissistic and homosexual; and that the prognosis and treatment of the malady should be based upon the strength of the primary, secondary, and tertiary libidinous energies, and upon how far

they may be made to assume a proper normal direction of development in sublimation.

It must be admitted that the microscope has not solved the riddle of the nature and pathogenesis of epilepsy. All the careful and detailed work of Nissl and his school concerning the changes in the ganglion cell which result from fatigue and poisons, has added little to our knowledge of the real pathogenesis of the disorder. There is not even a constant histological pathology of this affection. The marginocortical gliosis, whether primary or secondary (Alzheimer), occurs in but half of the cases. Even were one to accept such lesions to be the proved pathology, most authorities believe the changes in the cortex are secondary to the epilepsy itself and stand in no wise as a causative factor to the fit. There is no known tenable theory to connect such a lesion to the disorder of consciousness which is seen in the epileptic seizure. While there can be no doubt that the initial departure of the fit is from the cerebrum, identical fits in different clinical instances have been found to have a widely variant lesion. In other words, clinically an epileptic fit is a fit and does not permit us to designate the one as *essential* and the other *symptomatic* or *organic* by the symptomatic expression of the convulsion alone.

Finally, up to date, the status of anatomical research, experimental and clinical, shows the improbability of our finding a common anatomical basis in epilepsy. Furthermore, nearly all the lesions found at autopsy in epilepsy are common to many other cerebral affections. It has been held that the cortical changes are induced by certain toxic states which are the real pathogenic agents to the disease itself. These agents vary from uric acid, ammonia carbonate, certain auto- and anti-autocytotoxins, trimethylamin and cholin—each substance as a cause has its special advocate; no one of these agents as a cause has as yet received independent corroboration. More pertinent to the issue of the phenomenon of the fit, to which we must adhere closely—as it is the one bit of positive evidence of the nature of the disease which we have—is the explanation why and how a fit really occurs. Jackson's view in this respect is the one universally held for the dynamical understanding of the fit from an anatomical standpoint. He held that the discharge is due to a disturbance of the labile equilibrium, between active resistance and active capacity, i. e., this phenomenon of inhibitory and exciting nerve force occurs within the nerve cell. This view—further elaborated by Gowers and endorsed generally by such observers as Oppenheim and Binswanger—is that the internal resistance against the action represents a higher function of the cell than nerve force could produce. Loss of consciousness by this theory can be explained only by an inhibitory process within the nerve cell. The discharges originate in the gray matter of the cortex, infracortical ganglia, and even in the medulla, chiefly in the cortex. Jackson's opinion that there is a high degree of instability in the nerve centres made him believe it was possible for a mild irritant, like some chemical substance or a chemical disturbance in the metabolism of the body to precipitate the attack. The spread of the latter may be explained

by direct extension of the disturbance from molecule to molecule and in part by the indirect means of the intercellular conduction paths. A great error lies at this point. No light is thrown on how overaction can occur side by side with inhibition. The increase of intermolecular motion which accompanies epileptic excitation depresses the excitability to new irritations. Jackson goes still further, however, in explaining how an overnutrition of a small cortical area, previously damaged and therefore overfilled with blood, may cause the nerve cells in which phosphorus has been replaced by nitrogen to take on an increased excitability of the nerve substance. Almost invariably he postulates minute capillary hemorrhages as the initial starter of the state of discharge. But the latest and most painstaking research fails to disclose such occlusions even of the "finer twigs," and in many brains where they are found fits do not occur; or, the vascular lesions are fairly certain to have been secondary to an initial fit. To meet this possible objection Jackson urged that but a few nerve cells need be damaged to induce a state of local excitability. He even went so far as to state that the lesion might be on one side of the cerebral cortex only, or not even in the cortex at all, but remote from the motor area; further, that fright, indigestion, or overexertion might cause the first attack, but that the after and enduring epilepsy had its real cause in the discharging lesion, owing to a definite pathological process. The parts then being almost ripe for the discharge, this was easily liberated by many and varied outside agencies. All admit that in epilepsy the immediate point of departure of the convulsion is in the sensorimotor portion of the cortex, and that a very insignificant destructive lesion may be of greatest importance for a discharging lesion. The higher and more complicated a centre, the greater is the compensation in negative functional lesions and the greater the excessive cooperation in, overpositive functional lesions. Compensation and cooperation in excess are at their highest in these highest centres. Jackson therefore concludes that an insignificant lesion in such a highly organized part of the brain may force the surrounding healthy tissues to cooperate with it. He further assumes that certain movements of these diseased centres are lost, without there being any actual palsy. If Jackson's theory of the dynamics of the histological pathology was as good and cogent as his logical understanding of the "superimposed levels" of the nervous system, the foregoing theory might be accepted *in toto*; but its weakness lies in an invariable postulate of a gross or microscopic lesion as the disturbing agent, the fuse for discharging the fit gun. It seems quite absurd that any of the usual so called causes for epilepsy might in themselves produce the first fit which was not epileptic (?) because it did not have the lesion cause for its initiation, but that *all subsequent* fits would be epileptic inasmuch as they then possessed the vascular lesions, etc. In short, it may be said that our more modern pathological research upon the epileptic cortex but goes to prove that the structural mechanisms of Jackson's organic cause for the fit do not exist; since the epileptic brain has not substantiated his vascular theory for

the inciting agent, nor is it at all clear why there is loss of consciousness in the fit, nor what relationship the fit may have to the organic life of the individual,—or does it explain the so called epileptic dementia, though there is no proof that dementia as such has ever required an anatomical basis; nor does it make clear the mental stigma of an enduring epilepsy.

If, at the present time, we are to hazard a physiological motivation for the fit in epilepsy, it must be found to fit into or flow out of the personality or character makeup of the epileptic. In the epileptic setting, the fit must have an element of satisfaction and must be found to mean something to the epileptic; this will become clearer later in the thesis. The fit must be born of a fund of energy as broad as the biological significance of life itself, whose perversion must adapt itself to the ruling motive of that force or energy, and lastly, it must be comparable to other and kindred manifestations of that energy in other physiological or psychological fields. To this latter end I shall urge that a certain type of perversions in the development of the libidinous energies of the individual epileptic permits and causes his fits and thus furnishes us with a better understanding of his so called epileptic constitution than we have had heretofore.

Here I can only briefly outline what these energies are in their primary, secondary, and tertiary characters as laid down by the psychoanalytic school.

Let us first outline some of the characteristics of the so called epileptic constitution. The data from which this part of the text is drawn have been taken from the careful and painstaking analysis of some twenty-five youthful epileptics, of both sexes, who have suffered no deterioration, mental or physical, from their malady and were not in the least intellectually inferior to the average for their age. The personal characteristics given here antedated their first seizures, and in some the character defects became more pronounced afterward; in others they remained unchanged or without essential augmentation. The cases were carefully selected from private records, and for accuracy have been controlled by collateral information from teachers, governesses, disinterested relations, my own trained nurses, and from my own personal acquaintance with them.

One must bear in mind that the facts here revealed are not those of the superficial makeup of the individual epileptic, but are really those which lie below the surface setting which can be thoroughly disclosed only by careful scrutiny of the conscious inner life of such individuals, the crudity of which is only too often more or less veneered by a cultivated exterior or screened from our view by apologetic and loving relatives.

As a class one finds the epileptic possesses a supernormal output of energy, which is constant and fairly productive of good developmental results so far as the organic makeup is concerned. This fact tallies with previous observations in classic works, but with this difference, that this constitutional characteristic antedates any of the seizure phenomena constituting his disease as such. Other writers account for this mental makeup for the most

part as one produced by the malady itself rather than as being present in the subsoil of the potential epileptic from earliest life.

There is also present a poorly repressed or thinly inhibited outcropping of the egotistic tendencies. These characteristics of a pathological self love are beyond the bounds of a purely physiological variation. Again, as might be inferred, the foregoing character defects prevent these patients from making good adaptations in their environments. The keen individualistic attitude of the potential epileptic is the more striking as he attempts to cooperate with others in a social or commercial life. He is a paragon of frankness. The subtleties of mind are not his; on the contrary, his mind always remains of a simple child pattern. He has no marked scruples or doubts of the obsessive neurotic; he is not burdened with inhibitions or prohibitions; unhappily his personality permits him to become self engrossed with the lower animal instincts and passions. With the inhibitions reduced and with an overemphasized estimation of his own importance and ability, the epileptic finds himself in constant conflict with the outside world. He cannot shape circumstances and situations to square with his desires. While the normal being has his infantile struggle which naturally results in a final compromise with the external world, with the epileptic youth this always remains a baffling struggle; hence his dislike for the outside world, which he often hates. His very baffling and unsatisfying contest with reality makes his childhood constantly bear the tokens of an unrequited self love, which onerous burden he finds no one in the world at large willing to share, except it be the fond parent or some one equally devoted. Being possessed of a desire to rule and to conquer, and at the same time graced with only mediocre attainments, he advances to an almost infinite number of social and business bankruptcies. He learns little from experience, hence his increased dislike of the world. He is early embittered and hence becomes an unpleasant companion or family associate. He is further attached to an infantile emotional life because he is usually possessed of little or no constructive imagination.

The mood of the potential epileptic is ordinarily not much perturbed; it is shallow and not given to deep and intensive feeling. Here and there one may see outcroppings of family types of irritability and morbid sensitiveness in the makeup, but on the whole the personality is singularly free from the reactions of moodiness, the variations of which in pathological excess is seen in the manic depressive makeup. It is in the realm of sexuality that one encounters the most shallow reaction in the epileptic makeup. His friendships are perfunctory. The egotistic traits prevent a free range of the expressions of affection. Friends come and go with the epileptic with little exhibition of heartache or break. The parental attachment, of the patient's own sex, and especially girls to their mothers, is remarkable. The love fixation to the mother is permanent more or less through life. The attitude toward the opposite sex is very significant. It rarely possesses the higher love attributes and generally evolves

little beyond the simplest or grossest sexual demands. It is largely this factor that most frequently makes marriage among epileptics a failure. If the disease progresses as it often does, it may entail further degradation in the underlying infantilism, and the love fixation is easily broken from adult attachments and then regresses to the parental image of infancy. The whole sexuality—the essential nucleus of the emotional defect in epileptics—will next be summarily recapitulated. It is in this realm that one need not be surprised to find that the instinctive demand, when shown in its frankest aspects, is gross, deep, fundamental, and attended by a matter-of-factness that is very remarkable. Before taking the matter up in detail, one may say that the individual who possesses the epileptic constitution lacks real general interests, which are much less continuous or persistent even when the variation of the normal adolescence is accounted for. In view of the fact that the libido is rigid, self centred and crude, one sees but small religious promptings in the potential epileptic—the meaning and end of life rarely engross him. Only after he meets the disheartening failures in social life and in his life work, does he take on the religiosity noted by classic writers upon this malady. Contrary to the usual view, I hold that ordinary heterosexual excesses among epileptics are rare. Heterosexuality is the final normal grown up manifestation of the adult libido, and we should not be surprised to find it conspicuous for its absence in the epileptic makeup, the latter possessing, as it does, so much of infantilism. The greater amount of sexual wreckage is found nearest the goal of its departure, as the great majority of epileptics never get far from parental attachment throughout life. To understand the emotional defects seen in epileptics, one needs to recognize the order of evolution of the libido, the essential nucleus of the emotional life in the making of the adult heterosexuality. First, we have the attachment of the libido to the mother; second, the putting away of the mother and the love-of-self phase, the love and worship of one's own body; then the homosexual attachment to the opposite parent and of others of that ideal in boys and the heterosexual attachment of girls to the father. Finally, boys break from the homosexual (and frequently also from the masturbational phase of their lives) to the heterosexual love soon after puberty, and thus adult normal sexuality is achieved. However greatly attached or libido-fixed an epileptic may be in any one of these primary phases in development, there is always some of the more advanced traits or possibilities of fixation, although the maximum of his libido attachment is in one sphere of the sexual evolution. Thus one may rarely if ever see in epileptics a pure homosexual as ordinarily understood. Furthermore, one may discount some of the contentions that the epileptic is a libidinous person and charge at least a part of this indictment to the fact that he only appears to be so because his libido is so irregularly manifested and developed. Thus while epileptics are admittedly great onanists, one must bear in mind that masturbation is often a vicarious discharge of an unrequited and underdeveloped libido shut out from

life work; he is excluded from ordinary social companionship and heterosexuality, which is especially the case of interned epileptics. Careful inquiry does not disclose that the act of masturbation performed by epileptics is in any essentials different from that seen in the normal types of humanity. The masturbation of epileptics is, however, noteworthy because of its long continuance even in many aged epileptics, thus preventing the after and proper development of the adolescent heterosexual emotional life. Habit movements and the hybrid forms of masturbational sexuality are particularly frequent in epileptics. So one might outline the whole subject of infantile sexuality, pleasure-sucking, narcissism, and various excitations of the autoerogenous zones. The irregular and excessive sexuality of the epileptic may be studied at length in the collective essays of Maeder,¹ who shows it in dreams, day fancies, twilight states, religious functions, and exhibitionism; the latter being the favorite mode of expressing the childish phase of narcissism, which is an intense and infantile state of the libido. The epileptic polyvalency in sexuality is due to the irregular sexual development; for instance, many are mother attached, autoerotic, and homosexually inclined at one and the same time. This is the essential polyvalent infantilism of the epileptic libido, which is but a magnified expression of the normal. The normal child closes up or passes more or less completely the different stages in the development of his libido; the epileptic leaves the doors open throughout the corridors of the years, even to the first one of the mother life. In the adult epileptic the infantile *anlage* persists and exhibits itself in a sexual polyvalency.

There can be no question that the essential nucleus of the affective defect in the epileptic is concerned with sexual infantilism, as shown in my case study to follow; this state is not, however, to be confounded with infantile sexuality, which, of course, is something quite normal. As I have shown elsewhere,² in pronounced idiocy and imbecility the expressions of sexuality bear the stamp of inferiority in the habit movements of this class, in many instances the whole personality is characterized by these activities of the defective group; that is, the whole personality is absorbed in these apparently meaningless movements, which, however, on close analysis prove to be the arrested and distorted potentialities of full psychosexual development. Indeed, nearly every child possesses all of these habit movements to some degree for a time, but it rapidly grows out of them in the advance of normal puberty and adolescence. The habit movements of the defectives might properly be designated the primitive arrest in psychosexual development. In the group picture with which we are here immediately concerned the state is quite otherwise, as it is but a partial perversion and much more fully elaborated in advanced life. The state of arrest of psychosexual development is usually shown for the

greater part in the psychic field. One may say that the sexuality has advanced beyond the infant type of expression into that belonging to childhood and early adolescence. There is an immaturity in the selection of the sex object, the child is engrossed with the mother, or is narcissistic (self concerned), or it is more or less homosexually inclined. In no cases of infantilism in epileptics have I found physical abnormality of the sex organs other than a smallness of the same and evidence of inferior development (there is no absence of the normal organs, etc.).

To be sure, the psychic type one finds depends upon the time and degree in the psychosexual fixation and the firmness of that attachment. Often epileptics do not properly finish the physical and psychic maturity of puberty; in girls the menstruation is late and scanty, the boys are eighteen or nineteen years of age before seminal emissions occur, etc., yet there is also a precocious type with full puberty at eight or ten years and withal an extra furor of motor and psychic precocity (see Case v). Most frequently these incomplete phases of puberty and adolescence are so apparently superficial and unobtrusive that the subject attracts no attention. Beneath the surface the sexuality and the psyche show crass immaturity (see Cases I, III, and VI). Often these individuals in spite of their psychosexual infirmities suffer no essential intellectual defect (see Cases IV and VI). Their states must therefore not be confounded with any of the ordinary classifications of mental defectiveness. Very often, however, these subjects are easily instructed, but not educated in its best sense. Their mental action is one easily given to memorizing, and teachers say they "learn their lessons by heart." The patient in Case VII can practically repeat and recite almost any poem or short histrionic classic one may call for. The fullness and fineness of emotional appreciation of these literary acquisitions are, however, denied her. The constructive imagination is conspicuously absent. Hence these patients are usually all at sea when placed at work to do original problems or carry out discussions or make a critique of things they have read or learned. The verbal expressions used are childlike, cramped, and attended by much circumstantiality of thought and wording. They almost invariably develop no character in handwriting, speech, or deportment; these facts are too well known to warrant space for illustration here.

Almost without exception married epileptics continue masturbation in spite of normal marital relations. This sexual trait does not seem to be continued because of an excessive desire for sexual expression beyond normal coitus, but because there is such an immaturity in the sexual life that a lower or simpler order of its expression is more satisfying; just as one sees mental inferiors select a more satisfying comradeship with those younger and apparently less developed than they. Often enough the psychophysical gratifications in sexuality cease after the first coitus, never to be renewed, or the remainder of the life is a masturbating one. In middle life one often sees a premature climacteric in woman, and in man there is frequently a return

¹A. Maeder, Sexuality and Epilepsy, *Jahrb. f. Psychoanalyt. Forschungen*, I, 1909.

²See Clark-Atwood, A Study of the Significance of Habit Movements in Mental Defectives, *Jour. A. M. A.*, March 28, 1912; Clark, Some Observations upon the Etiology of Mental Torticollis, A Further Study upon Mental Torticollis as a Psychoneurosis, Mental Infantilism in the Tic Neurosis, *Medical Record*, February 7 and 28, and March 28, 1914.

to childish sexuality, peeping, handling of genitals, without even seminal emissions. This latter state often leads them into a host of simple perversions, exhibitionism, fetichism, etc. On the purely physical side of development, one may say that the infantalism is very marked; classic types, already well known, are exquisitely illustrated in Cases I, II, and VII. To find the robust, beautiful types of body and face among epileptic individuals is so rare as to be specially remarked upon. The assumption of mannish traits in women and feminine ones in men in the epileptic class, is also too striking to warrant comment. Mothers idolize these sweet, correctly behaved epileptic boys, and the mannish girls are exalted by both parents alike in that they are never silly and sentimental, nor do they idle away their time in courting attentions from the opposite sex; to such depravity has modern society arrived that it discounts and eschews the usefulness of the harmless for proper development of adolescence. Psychically one sees the epileptic constitution little perturbed in normal affectibility; there is little normal emotionalism, tragic deaths make little impression, the astounding rapid transference of the mother libido at her death to the older sister or to an aunt or foster nurse is so sudden in girls as to be uncanny. The transference is almost always to the same sex as the epileptic, and naturally falls on the one possessing the greater number of mother or father image characteristics. It is not possible for us to trace at this time the outcroppings of the rapid senility in elderly epileptics and the swift return to the grossest infantilism in simple senile involution, independent of the natural mental deterioration due to the increase of the disease at such a period. Its profundity is unique in the mental diseases of old age. Without further elaboration at this time, one may say that the affective defect in epileptics as a class is gross enough for one to designate it as *infantile*, that the grosser psychic and physical defects are shown in an immaturity and disproportionate development of the psychosexual life, that this state is closely allied with much that is usually seen in dementia præcox, in some hystericals, and especially in certain types of the compulsion neurotics.

To summarize, we have shown that one must discard the anatomical explanation of the disease, that the supposed mechanisms of perverted cell function in the cortex, satisfactory from experimental physiological grounds, is discounted by the general absence of vascular lesions in the pathological studies of the epileptic brain. On the contrary the epileptic brain may be prompted to abnormal functioning by a psychological mechanism, the nature of which will be detailed later. To lay a proper foundation for the study of the same, we have seen that the epileptic emotional life is defective because of mental infantilism, that the essential nucleus of this defect is a too intense and prolonged parental fixation of the libido. A study of the sexuality of the epileptic shows that his egocentric tendencies are probably due to the self centred strength of his sexual energies.

To ascertain further the relationship of the sequential epileptic to the preceding constitutional makeup, I have selected several cases of ordinary

grand mal epilepsy for intensive analysis. I soon found definite reasons why mental analysis had not been more immediately productive in this field. The very innate character of the egocentric complex of the epileptic constitution prevents his making a strong or proper transference. The libido of the epileptic is so often filled with dislike and even hate that it does not permit a proper adult transference. Some of the barriers to the work are shown in that the analyst is unconsciously held responsible for the invalid's disease. Only too frequently the family physician has avoided the issue and held out hope to the patient that his malady is not really epilepsy, or, if so, that it is of such an irregular form as to share none of its dreaded evil prognosis. Thus the neurologist gives him the disease (language of the unconscious). Furthermore, the plan of treatment usually laid down for the patient is considered by the latter as entailing a highly restrictive life, and there is also set for him a severe penalizing task to get well. These factors, and many others not necessary to mention here, keep alive in the patient an active resistance to analysis which many physicians have not had the time, the patience, nor the ability to overcome. With these handicaps well in mind, however, the work was undertaken and has been fairly completely carried out in at least a dozen cases. The case notes of eight of these are given in the clinical portion of this paper. The dream analysis was the one method usually employed. Two facts were soon noteworthy in the dream analysis; first, that the dream contained a large number of simple repressed child wishes; this concerned eating sweets and going to circuses and places of amusement, etc., either with the mother or against her prohibition. The second was the simple functional character of the dream imagery; thus emotions of love, etc., were symbolized by fire, and the robber assaults were obviously sexual in character. The egocistic tendency was shown in helping or directing father or mother to build churches, lay out streets, or plant flower gardens, etc. Most energetic analysis proves these dreams to be at or very near their surface value. The foregoing is what might be expected from our previous understanding of the infantile nature and character of the epileptic. In the analysis it was also easy to show a very strong and persistent dominance of the mother and father in the majority of all the dreams. There were many homosexual platonic attachments. There was never in very many of them the slightest tinge of heterosexuality. Inasmuch as there was a strong similarity between the dream states and some of the psychic states in epilepsy (see Case II) it seemed likely, if one might analyze closely the minor attacks and to some extent the grand mal, that the fits would show a sufficiently libidinous content for one to relate the purpose and elaborate the motive of the attack and in such a manner as to make it part and parcel of the functioning of the epileptic constitution. I believe the cases annexed to this study abundantly prove that the fits in these epileptics are but strivings of the unconscious for its libidinous expression. This fact has been more than hinted at before in the literature of our subject. For instances, Ferenczi,² in his study of the developmental stages of the sense

²Internat. Zeitschr. f. Psychoanalyse, 1, 110, 1925.

of reality and referring to the child's use of the "magic formula" by which it gets results, such as the employment of screaming and kicking, he likens the latter to motor discharges. He further calls attention to the pathological aspects of the fit as being analogous to these physiological acts of the infant. Taking into account that the epileptic is an uncommonly sensitive human being, and that behind his apparent submissiveness there often lies fearful rage and hate and that even self glorification appears on the slightest occasion, Ferenczi, as noted in our text, speaks of these personal characteristics as having been ascribed to the effects of the disease and not as being primarily inherent in the individual before the convulsions appear, as we have shown actually to be the case. Still further, Ferenczi suggests that the epileptic attacks represent regressions to the infantile period of fulfillment of wishes by means of incoordinate movements. From this viewpoint he thought the epileptic might be considered a creature in whom displeasure-affects accumulate and react off periodically with paroxysms. Physiological counterparts of such a state in a normal man might be shown in the stamping of feet, clenching of hands, and gnashing of teeth in outbursts of anger—being forms of everyday normal regressions.⁴

It has been found that the degree and severity of the fit are in direct proportion to the outlet demands of the unconscious libido of the epileptic. For some time different observers have shown what an intense egocentric libidinous element is present in the epileptic psychic equivalent and the epileptic deliria as shown in MacCurdy's case, in which the patient had a series of delirious episodes. In one of these the patient thought he died and went to heaven and was there under the immediate control of the Lord; in another he suffered homosexual assaults from the Father and he himself gave birth to children. Later, the earthly father concept became that of the heavenly Father who was the impregnating agent. The Lord promised to cure him of his epilepsy, etc. The symbolism of the impregnations by the Lord were shown in his being shot, electrocuted, burned, etherized, poisoned, etc. The inciting agents to these delusional concepts were medicines given him and various physical treatment in the asylum wards. In fact all the ideas expressed in the deliria were traced plainly to actual early childhood experiences and ideas. The ultimate summation of all the delusion episodes was that the patient was in heaven, was the son of God, that he was in intimate association and relationship with the Lord, the heavenly Father, etc., in homosexual relations. Similar strivings of the unconscious infantile conceptions of sexuality are often shown in my own patients. One case may be briefly cited to show what is meant: A man of forty-five years, who had been a grand mal epileptic for several years, after three severe grand mal attacks, and after the prolonged and continuous visit

of a brother and the hurried eating of a heavy meal, went to bed, but had no sooner fallen asleep than he had a slight petit mal attack; just as the convulsive part of the attack was at its height, the patient laughed boisterously, kept crying loudly, "We are all saved!" His eyes were staring, the pupils were dilated and irresponsive to light. He was greatly excited and kept repeating what he termed his "great news." He then turned to the nurse, asked for the urinal, and said, "I shall now make some of God's essence in it; we will then break it and spill it on the ground as a libation to the gods and thus fertilize the world." He then became excited at the nurse's refusal to break the vessel which he had handed to him and which contained nothing but urine, so he forcibly took it from the nurse and himself smashed it on the floor with great violence. He then said somewhat calmly but firmly, "Now let us pray for the consummation." He then knelt and prayed aloud, "God our Father who art in Heaven, make us fruitful and save us all; Amen." He then turned abruptly to the nurse on whom he had often consciously bestowed many kindnesses and little gifts—in fact, he had frequently shown more personal attachment than is often seen between a patient and nurse—and said, much to the nurse's annoyance, "Come, get in bed with me and I'll go for you. We will have intercourse and have a grand time. We can thus fornicate with all the world. You know everyone must bear children—every man, woman, and child. See, I have had mine" (indicating an old scar in the right inguinal region, which was the site of a former operation for a gangrenous appendicitis). "We can now lie together and fecundate all the women we like in the world. This is the end of all and we are saved. We shall enjoy ourselves in bed, smoke and drink all we like." He was now again greatly excited; his voice became high pitched, face greatly flushed, the lips were dry and he constantly moistened them. After lying quiet a moment in bed but apparently with intense restraint, he said, "I'm having a funny experience. I'm having full intercourse with a lot of women by just flying over them. You see I am full of it all over, I could fructify the whole world." The psychic attack gradually eased off and he then said in a rather sad, pathetic, tired voice: "I am a very sick man; give me a glass of water and don't say what has been going through my mind. It has all been a sort of nightmare dream; I can't bear to speak of it, even if I would tell it." He was becoming conscious, though still a bit dazed, like one waking from a distressing nightmare. He continued to say: "I guess I am tired out with what has come up in my mind. Keep it all quiet, that's a good fellow." He drank six or seven glasses of water and was quite normal in ten minutes.

The citation of the foregoing is not unique and could probably be duplicated endlessly from the psychic equivalents and deliria in the interned epileptics, but it is given here to show the crude types of discharge the unconscious may make in these epileptic episodes. No one for a moment can conceive that such sexual conceptions and illogical views of sexual intercourse and childbirth could come from anywhere but the infantile unconscious, implanted

⁴This point of the general text from Ferenczi's article was found after the case material had been studied and put into manuscript. It is interesting to note how thoroughly Ferenczi's views actually prove true in the case studies, with the possible single exception that the libidinous expression in the fit is not alone one of displeasure affect, to let the matter end there in a negative way, but that the road may be cleared so that a state of complete pleasure may succeed, a sort of winning heaven through a purgatory of trials.

there in the most primitive ideas of sexuality. Numerous illustrations from the same case showing the infantile unconscious might be cited. For instance, at the beginning of the majority of the minor seizures, our patient says, "Yes, it's for you; he goes for you" (referring to one of his nurses and looking at the other one). In a more prolonged psychic episode attended by sufficient befogged state to elaborate this cryptic phrase, he says, "He goes for you on the bed," referring to a homosexual relation of the male nurses and the child bearing that may result from such acts. In passing, I may say that this man is, in normal everyday conscious life, one of the most gentlemanly men I have ever met. The immaturity of his emotional life, however, was disclosed in many ways.

(To be continued.)

THE MEDICAL TREATMENT OF PITUITARY DISEASE.

BY WENDELL REBER, M. D.,
Philadelphia.

Thyroid medication has now reached a fairly definite basis of understanding, but this, we believe, cannot yet be said for pituitary medication. While our ideas as to the composition of the anterior and posterior lobes and the pars intermedia and their various functions are clearer today than they have ever been, the effects produced by preparations of the various portions of the gland have shown such wide variations that we are not in a position to lay down accurate indications as to method and dose. Moreover, the interrelations between the thyroid and the pituitary body are by no means settled.

Meanwhile, the surgeon, guided by fairly accurate findings (such as the general status of the patient, the skiagraph, and study of the visual fields), no longer hesitates to attack the pituitary body by the intranasal or extranasal route. In some cases the brilliancy of result has more than surpassed expectations, while in others fatalities have supervened. Indeed, the mortality became an important factor. In his last of twenty-six cases, Hirsh, operating by the intranasal route (which is considered by many the safest method), reports three deaths or about one in nine (eleven per cent.). This of itself should give us pause, the more so as a small number of cases have been reported in which organotherapy has brought about almost complete disappearance of the signs and symptoms of pituitary disorders. Waldeck, for instance (*Jour. Michigan State. Med. Assn.*, 12, p. 417, 1912), reports a case of hyperpituitarism passing later into the picture of hypopituitarism. Operation was refused, but there was marked improvement in general health under prolonged administration of pituitary extract. The skiagraph showed enlargement of the sella turcica and absence of the right posterior clinical process. Recently De Schweinitz recorded a case in which brilliant results followed medication with pituitary preparations, marked improvement showing within a fortnight.

Another case studied for three years (by Clothier and Devitt, of Philadelphia), I have the privilege of

mentioning here in only a preliminary way. The man, about thirty-five years old, presented classic bitemporal hemianopsia with phenomena of hyperpituitarism. The skiagraph showed enlargement of the pituitary body. Medication with thyroid was instituted without any noteworthy improvement. Pituitary whole gland was then added to the treatment, and in four months normal vision was restored with re-establishment to full limits of the form and color fields. The patient then went without any medication for two years, when he was found to have an incomplete vertical hemianopsia in the right eye and marked contraction of the form and color fields in the left eye. Treatment was again instituted, this time with pituitary (whole gland) substance alone—but the expected improvement did not occur. Thyroid substance was then added, and within twelve months the usual fields again returned to normal limits for form and color. This last recovery dates back ten months, and the patient still enjoys full vision and visual fields.

Pituitary disease is a relatively common malady which has been heretofore largely overlooked. There is no question that from now on it will be much more frequently recognized. The question will then present itself, whether the treatment shall be medical or surgical. With a mortality of eleven per cent. attending the surgery of the condition, it seems that organotherapy should first be resorted to. And even though it may have to be pluriglandular, the end sought will more than justify the means. Eventually we shall learn whether thyroid or pituitary preparation or both are indicated, and when and how.

Meanwhile we plead for a trial of organotherapeutics in pituitary disease. Should the medical treatment prove unavailing, resort may be had to surgery.

1212 SPRUCE STREET.

CHRONIC INTERSTITIAL NEPHRITIS.*

BY WILLIAM HARMAR GOOD, M. D.,
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The term chronic interstitial nephritis as applied to genuine contracted or granular kidney is frequently a misnomer. Often it is a mere degenerative change, the inflammatory process being at the most a very subordinate factor. A number of pathological conditions are probably included under the one term. A better one often would be progressive renal atrophy.

The frequency of granular kidney is much greater than is usually recognized. The general post mortem frequency is given by different writers as from twelve to eighteen per cent. With the more general use of the sphygmomanometer and more frequent examination of the eye grounds, we are diagnosing many more cases correctly, instead of attributing the death to cerebral hemorrhage, angina, or bronchopneumonia, which so often are but the terminal phases of renal atrophy extending back many years.

As a cause of sudden death, West (*Granular Kid-*

*Read, November 10, 1914, before the Frankford Branch of the Philadelphia County Medical Society.

ney and *Physiological Albuminuria*) tells us of seventy-nine persons over five years old brought into St. Bartholomew's Hospital dead or dying, upon whom autopsy was made; in seventeen per cent. granular kidney was the cause of death, in twenty-one per cent. a concomitant cause, and in ten per cent. an accessory but doubtful cause. Forty-eight per cent. in all had granular kidney.

As to the age—again quoting West—out of 628 patients, 338 died between the fortieth and sixtieth year; only nine before the twentieth year, and forty-six before the thirtieth year. About twice as many males as females are affected. There are many factors in the causation of the disease, more especially gout, lead, alcohol, the toxins of the infectious diseases, especially syphilis, scarlet fever, and diphtheria, toxemia of pregnancy, irritation by calculi, trauma, passive congestion due to disease of other organs, interference with the outflow of urine by inflammations and obstructions in the urinary tract, and ascending infections.

There is also a small secondarily contracted kidney, yet some excellent observers have not seen it. A small granular kidney secondary to arteriosclerosis is frequently seen. Heredity plays an unmistakable role in certain cases, as in five generations of one of my own families, all who escaped acute infection or accident died of chronic Bright's disease.

Notwithstanding the great number of etiological factors, in the overwhelming majority of cases we can find no definite cause (Dickinson, Strümpell, Herrick). Probably often what we give as the cause is but the exciting factor, the underlying true cause being some defect in development, hereditary or other.

The question of the relation of granular kidney to arteriosclerosis is very interesting. First of all there is a great difference between the uniform and universal thickening of the vessels secondary to renal hypertension, and the irregular patches of atheromatous degeneration of arteriosclerosis with the process so often localized in great part to certain groups of vessels. The atheromatous degeneration may be induced by the chronic hypertension of granular kidney; the two conditions, common as they are to late middle life, may develop independently at the same time. Again, atheromatous degeneration of the renal arteries, by cutting off the normal blood supply, may cause renal atrophy. Little need be said of the pathology. Macroscopically, the typical granular kidney is much smaller than normal and feels firmer to the touch, the surface having a peculiar granular or mottled appearance. The thickened capsule is stripped off with difficulty, often tearing off small fragments of kidney substance.

It is remarkable in some cases how small the kidneys may be and yet the patients have not shown much evidence of the disease until shortly before death. On cross section, the cortex is greatly decreased in thickness, with distinct striations of fibrous tissue running through it. The pyramids are also smaller and show the connective tissue infiltration. Microscopically, one finds the normal renal parenchyma replaced in great part by connective tissue, the remaining portions showing marked evi-

dence of degenerative changes. The glomeruli are especially altered, many of them being replaced by structureless hyaline masses. The small arterioles and capillaries likewise show hyaline degeneration, especially of the subendothelial layer. Marked atrophic changes are found in the tubules, many having disappeared, others are denuded of their epithelium and filled with cellular debris and hyaline masses. Gull and Sutton (*Medico-Chi. Trans.*, LV, 1872, page 273) state that "essential and primary in contracted kidney are the changes in the vascular system more or less general throughout the body, an arteriocapillary fibrosis especially of the adventitia."

This diseased process may begin and remain fairly well localized in the kidney, heart, lungs, brain, spleen, or other organs. "And wherever found, the minute arterioles and capillaries are thickened by a hyaline fibroid formation with atrophy of adjacent texture. The morbid change commonly begins in the kidney, but there is evidence of its also beginning primarily in other organs. The kidneys may undergo extreme change without being attended by cardiovascular or other lesion characteristic of the condition known as chronic Bright's disease." This theory would readily explain the frequent association of granular kidney with emphysema, atrophic myocardial disease, and mental disease.

Of the symptoms, the three most important in the order of their relative significance are hypertension, the urinary findings, and albuminuric retinitis. The symptoms may be divided into two groups, the cardiovascular and the toxic. The cardiovascular are in great part the result of the hypertension, which is probably compensatory in nature and appears only after renal atrophy has progressed to a marked extent with possibly less than one third of the normal kidney activity. Of the cardiovascular symptoms, the hypertension is the most important and stands in causal relation to the cardiac hypertrophy, the arterial thickening, cerebral hemorrhage, and finally the symptoms of cardiac decompensation, dyspnea, palpitation, edema of the lungs, anginal seizures, edema of the legs, and scanty urination. The prominence of the cardiovascular symptoms with the secondary degenerative changes in the heart and vessels often leads us to overlook the primary renal atrophy.

Some years back, our conception of arteriosclerosis was that a rise in arterial pressure due to some toxin caused the arterial changes, and, secondarily, changes in the kidney and heart. In careful study of our cases of arteriosclerosis, we find usually no rise in pressure and often a fall in pressure, unless the kidneys, damaged by sclerotic changes in the renal vessels or by some overcrowding of the blood by metabolic waste or toxin, are not capable of meeting the demands of the body; then we have the compensatory hypertension, possibly again relieved after the crisis is passed.

Instead of the hypertension causing the arterial changes and these then the granular kidney, the kidney is primarily involved, causing finally a rise in tension and a secondary arterial fibrosis and cardiac hypertrophy. We may have extensive renal atrophy, however, with a normal or subnormal pressure, small atrophied heart, and thin arterial

walls, even with uremia, although this is quite unusual. In the last ten years the percentage of cases of chronic hypertension due to other than renal disease has been rapidly decreasing. Hypertension during the course of the disease may fall by reason of a return of the kidney to greater functional activity. It may also fall because cardiac weakness fails to maintain it, and this is followed promptly by untoward symptoms. Again it may fall by reason of the improper use of drugs, especially of the nitrite group, although, fortunately, their action is usually slight and fugacious.

Since the hypertension is probably a compensatory phenomenon, the most effective and safest method of reduction is by rest, mental and physical, a restricted bland diet, and increased elimination. Palpitation and dyspnea, especially on exertion, are often very early symptoms, for the relief of which the patients often first consult us.

Arrhythmia is also frequently met with as the myocardium begins to fail. The throbbing headache and vertigo felt early in the disease are due in great part to disturbances of the cerebral circulation. Later it is more of a toxic condition. Asthmatic attacks are frequently noted as the disease progresses, and are also often toxic in origin, although a quick response to digitalis often reveals them as due to cardiac weakness. Acute edema of the lungs is commonly the immediate cause of death. Edema of other parts of the body is rather unusual, and when seen is due in great part to cardiac failure and is usually first noticed about the ankles.

Dickinson states that in over forty per cent. of cerebral hemorrhages, granular kidney is the primary cause. Troublesome nosebleed is at times met, also metrorrhagia and hemorrhages of other parts. Precordial distress and anginal seizures are common, angina pectoris not infrequently being the terminal phase of the disease.

There are three theories as to the causation of the toxic symptoms, retention of catabolic waste products, formation of abnormal or perverted metabolic substances, and the internal secretion theory.

The toxic symptoms may appear very unexpectedly, suddenly striking down a man in apparently robust health with uremic convulsions, and cause death in a few hours; or they may appear slowly with development of the symptoms of chronic uremic poisoning. The most important of the toxic symptoms are the troublesome and often persistent vomiting and attacks of diarrhea, severe headache, vertigo, such respiratory disturbances as renal asthma and Cheyne Stokes breathing, convulsions, palsies, peripheral sensory changes, disturbances of mentality, skin rashes, and cachexia with rapid emaciation, anemia, and feebleness. On more careful examination of our patients, a greater number of long standing intractable gastrointestinal conditions associated with headache and "bilious attacks" coming on in late middle life, will be found to be due to a progressing renal atrophy.

The urine not infrequently remains normal until very late in the disease, even with considerable hypertension and changes in the eye ground; but the usual picture is a moderate polyuria causing the patient to rise during the night, a low specific gravity, 1004 to 1010, a slight trace of albumin, and

a few hyaline and occasional granular casts. During periods of cardiac decompensation and uremia, the urine usually becomes decreased in quantity and loaded with albumin and granular and hyaline casts.

What is the significance of albuminuria? With concentration of the urine and the most delicate tests, traces of albumin may be found in all urine. In probably forty per cent. of urine, more especially after a heavy meal or marked muscular effort, traces of albumin may be found with careful testing. The records of two large insurance companies (West, *Granular Kidney and Physiolog. Albuminuria*, page 50), however, show that less than one per cent. were rejected on account of albuminuria. Eales (*Birmingham Med. Rev.*, xxxiii, page 46, January, 1880) reports that of fourteen young men sent to him with temporary functional albuminuria, i. e. "physiological albuminuria," retinal changes were found in five.

One might here note that physiological albuminuria is not associated with polyuria and nocturnal urination. Especially since the advent of the centrifuge, what has been said of albuminuria is probably true of hyaline casts. Nevertheless, a persistent even slight albuminuria associated with a few hyaline casts in a patient over forty years old is to be looked upon with grave suspicion, especially if associated with polyuria and nocturnal urination, and the patient must be counselled as to his mode of living.

As to the relation of chronic hypertension, normal urine, and nephritis, J. L. Miller (*Journal A. M. A.*, October 4, Lxi, page 1259, 1913), quoting Fisher, states in 550 cases of hypertension, sixty-two per cent. gave clinical evidence of nephritis, fifteen per cent. led to suspicion, and twenty-three per cent. had normal urine. Excluding cases with pressure below 160 only in 3.6 per cent. was the urine normal. Autopsy in forty-two cases showed definite microscopic evidence of nephritis, although in fourteen cases the urine showed no evidence of renal trouble.

Another frequent and important symptom is the albuminuric retinitis with its hemorrhages and white splashes of degenerated retina. Often it is, that the ophthalmologist makes the diagnosis of chronic Bright's disease for us. Probably thirty per cent. of the advanced cases of granular kidney show retinal change, this change being more common in these cases than in the chronic parenchymatous nephritis. The amount of loss of vision depends upon the position and amount of the degenerated areas, the patient often not complaining much of failure of vision. One often wonders at the comfort of patients with pressures over 200 and marked changes in the retina.

I desire to mention the great value of morphine and blood letting in the acute crises of the disease, edema of the lungs, angina pectoris, and uremic convulsions.

As to the duration, the disease is one probably lasting many years before symptoms begin to appear. In the family of five generations of nephritics that I have been studying, five or six of the children, one only fifteen months old, have innumerable hyaline casts in the urine with no increase in pressure, and are apparently in robust health. Most

of the family, however, live to be forty-five or fifty years of age before succumbing to the disease. Joseph Kidd (*Practitioner*, XXIX, page 104, 1882) reports a patient who for seventeen years had all the signs and symptoms of advanced granular degeneration of the kidneys, and he had been sick for years previous to this, finally dying in his forty-sixth year.

The degree of hypertension is no criterion as to the extent of the disease. Most patients with marked hypertension die within five years, although not a few live more than ten years. Retinal changes are particularly ominous, the overwhelming majority of victims succumbing within two years, though occasionally they survive ten or twelve years or even longer. After cardiac compensation has once broken, the patients usually succumb within a year or two.

Yet all can recall cases of acute pulmonary edema, angina pectoris, or uremic convulsions, in which death seemed but a question of a few minutes or at the most an hour, and notwithstanding this condition, the patient lived three or four years, often in comparative comfort.

RISING SUN AVENUE AND TABOR ROAD, OLNEY.

THE TREATMENT OF CHRONIC NEPHRITIS.*

BY FRANCIS J. DEVER, M. D.,
Philadelphia.

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The ability to diagnose between chronic primary interstitial nephritis, secondary chronic interstitial nephritis, and the renal degeneration due to arteriosclerosis, does not in any way affect the general management and treatment. We may therefore treat these conditions under the one heading of chronic nephritis, or better still, chronic renal degeneration.

Unfortunately, early in the disease, when treatment would be most effective, the symptomatology is so slight that the patient does not seek medical advice, or seeking such advice, the gravity of the apparently trivial complaints is overlooked by the physician. We must not be satisfied with diagnosing the pathology, but must make a careful and diligent search for the etiological factor or factors, realizing that treatment is doomed to failure if the cause or causes of the disease are still operative.

The search for the cause entails a careful study of the habits and occupation, as well as a systematic examination of the functioning of all the viscera, particularly the gastrointestinal tract. Excess of protein food, long continued, will cause serious degeneration of the renal structures. Many patients employed in sedentary work, when questioned, will state that they do not eat an excess of protein foods, notably meat. When, however, the facts are carefully analyzed, it will become apparent that the proteins consumed would be moderate for one doing manual labor, but excessive for an individual engaged in a sedentary occupation. It is therefore

necessary to make a careful study of the relationship of intake of food to the amount of energy expended. Patients having a bowel movement daily will truthfully state that constipation is not present. When the colon is studied, it is found that certain of these individuals do not completely empty the colon with each evacuation and are constantly absorbing products of decomposition which act as poisons to the renal epithelium. A study of the colon is especially important when food is improperly masticated, as under these circumstances only the outside of a mass of protein is digested in the passage through the stomach and intestines, while the inner portion of the mass is decomposed in the cecum, producing toxins, the elimination of which through the kidneys for a sufficiently long time may cause the degeneration.

In the earlier stages of the disease, drugs occupy a very insignificant position, general management being far more important. Three meals daily should be taken at regular hours and nothing eaten between meals. The importance of thorough mastication must be emphasized. The diet should be simple with a reduction in the quantity of meats. It is not uncommon to observe that when the diagnosis of chronic Bright's disease is made, all meats are forbidden. In most cases, if the digestion is capable of handling proteins in such form, they should not be interdicted. On the other hand it is important to see to it that an excess is not taken. Meat may be permitted every second day. Most vegetables may be allowed, but those that are capable of producing an oxaluria, such as tomatoes, celery, etc., must be used in small quantities only and at infrequent intervals. Urinalysis should be made twice weekly so as to avoid the long continued excretion of uric acid, oxalate of lime, indican, scatol, etc. Calcium oxalate is especially irritating, and when excreted in large amounts, even by healthy kidneys, is frequently associated with albuminuria and casts. At times I have even seen a few erythrocytes appear in the urinary sediment, from which, before oxaluria occurred, they had been absent. We are accustomed to think of chronic nephritis, especially the arteriosclerotic and primary interstitial types, as being characterized by an increased amount of urine with a specific gravity lower than normal. While this is practically always true in the terminal stages, it is not uncommon to observe the excretion of hyperacid urine with a moderately high specific gravity in the earlier periods. As waste products in great concentration will add to the damage existing in the kidneys, it becomes necessary to overcome the concentrated urine by the administration of plain water or if necessary an alkaline water. The continued use of the various mineral waters is totally unnecessary as well as expensive. Any plain pure water will give excellent results. Excessive water drinking is to be avoided because of the additional strain thrown upon the cardiovascular apparatus which is overburdened by the renal disease. Sufficient water should be prescribed to maintain the specific gravity of the urine at 1015. Alcohol should not be permitted, and the quantity of tobacco should be reduced to a negligible amount. Many patients, when told not to smoke, will hold in the mouth an unlighted cigar for hours. A salivary

*Read before the Frankford Branch of the Philadelphia County Medical Society.

extract of tobacco is thus produced and swallowed and is probably more deleterious than the smoking of a cigar.

Unless there is well marked evidence of cardiac or renal insufficiency, bed treatment should not be employed. As a matter of fact these patients are better generally for exercise in the open air. The effect of exercise on the circulation must be studied and the proper amount prescribed. Blood pressure studies before and after a given amount of exercise will enable the observer to prescribe the proper amount.

Hypertension is present in practically all cases of chronic nephritis and is to be looked upon as compensatory just as is the hypertrophied left ventricle, and no attempt should be made to reduce it. A toxemia of renal or gastrointestinal origin may increase the hypertension to a dangerous degree, i. e., over 200 mm. Hg., in which event it becomes necessary to employ measures for its reduction. The best method is by free sweating obtained by heat and not by drugs. Such drugs as nitroglycerin, or nitrites, and iodides are rarely efficacious and cannot be continued over long periods without causing gastrointestinal disturbances which, even though the symptoms are slight, are dangerous. Diuretics should not be used in the early stages of the disease.

When symptoms of cardiac or renal insufficiency appear, proteins and sodium chloride should be eliminated from the diet and absolute rest in bed becomes necessary. In cases where orthopnea is present, rest in bed in the recumbent posture is impossible, and any attempt to maintain this posture causes great distress. Under these circumstances a large comfortable chair should be placed beside the bed and the patient allowed to spend most of his time therein. While the patient is sitting up, the legs should be well protected so as to avoid chilling. Digitalis, as a freshly made infusion, or an efficient tincture, often does good. It must be remembered that the toxic action of the drug is at times manifested, not through the heart, but the gastrointestinal tract by loss of appetite, later by nausea, and often by vomiting.

These symptoms are often viewed as uremic in origin, when as a matter of fact they disappear within twenty-four or forty-eight hours after the discontinuance of digitalis. Strophanthus may then be substituted. Strychnine should be used when quick, sharp stimulation is necessary and must not be used continuously. When edema of the lungs occurs, atropine, grain 1/200 to 1/100 hypodermically, is often of remarkable value. Venesection should be promptly employed, an effort being made to withdraw from eight to sixteen ounces of blood. The bowels should be thoroughly emptied and the skin kept active. Hot air baths or hot wet packs are at times wonderfully effective in causing the diminution or disappearance of uremic symptoms. When cardiac compensation is broken, they must be used very cautiously and should be employed only when the attending physician can remain with his patient during the procedure. Morphine must be looked upon as a dangerous drug in chronic Bright's disease.

As is well known, death usually occurs in chronic nephritis in one of three ways: Through acute or

chronic toxemia, due to renal insufficiency (uremia), cerebral hemorrhage, or heart failure due to myocardial degeneration. It is in those cases where the symptoms are largely the expression of the myocardial disease that morphine may be used. It will often quiet the extreme restlessness and mental excitability that is so commonly observed in these cases, thus removing a strain from the embarrassed heart. It must be used in minimum dose and as infrequently as possible.

In conclusion, I wish to point out that it is impossible to prescribe a treatment for chronic nephritis which will be applicable in every detail to all patients, very few of whom present identical symptoms. We must be guided by the broad general principles that, 1, cases must be diagnosed before the terminal symptoms of cardiac failure or uremia occur; 2, the etiological factors must be discovered and removed; 3, anything that increases the work of the kidneys must be avoided; 4, drugs must be used, not constantly and in a routine manner, but only to accomplish a definite result.

319 SOUTH EIGHTEENTH STREET.

THE RELATIONSHIP AND VALUE OF THE SYSTOLIC, DIASTOLIC, AND PULSE PRESSURES.

BY FRANCIS ASHLEY FAUGHT, M. D.,
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On March 30, 1913, I presented a short paper before the Camden County Medical Society (*Interstate Medical Journal*, July, 1914) bearing upon the clinical importance of the diastolic test. Without repeating what was said at that time, I wish now to call attention particularly to the importance of the estimation of the pulse pressure. This, as all are aware, is estimated by subtracting the diastolic from the systolic pressure, as obtained with a sphygmomanometer. Throughout my studies of the cases included in this paper, I have employed the method of auscultation. Attention has already been called to the fact that by this method, we obtain readings slightly different from the older and less accurate ones; thus the systolic pressure will usually be found a few mm. above that obtained in the other way, while the diastolic may be as much as fifteen mm. Hg. lower.

Before explaining the significance of pulse pressure variations, it would seem advisable to refresh the reader's memory upon a few points in relation to blood pressure, chiefly from the physiological standpoint, in order that the significance of the pulse pressure variations may be more readily appreciated.

It is a well established fact that all pressure readings vary from time to time in the normal individual, which means, of course, a person with normal heart, arteries, and kidneys; and that both the systolic and diastolic pressures, while maintaining an approximately normal ratio, tend to rise upon exertion. Extreme exertion, by increasing the systolic output, will, in a normal heart, cause the systolic pressure to go up more rapidly than the diastolic.

The result is a larger pulse pressure; whereas in persons with defective cardiovascular systems and kidneys, there will usually be noted a reversal of this physiological reaction. Here there may be a rise in the systolic pressure, but it is not accompanied by the normal relative change in diastolic pressures, and therefore does not maintain the normal pulse pressure ratio, which, instead of increasing, remains stationary or may even be diminished.

It is also thoroughly recognized that any condition which interferes with the forward movement of blood in the arterial system will cause a rise in the systolic pressure, and that the more rigid (arteriosclerotic) the arteries, the less will the diastolic pressure tend to follow it. The result of this change is the production of an abnormally increased pulse pressure ratio. The same change occurs if

sure, diastolic pressure, and systolic pressure of 1:2:3.

In demonstration of this fact, I have taken at random a series of twenty normal individuals, aged from twenty-two to fifty-three years. The highest systolic pressure was registered at 155 mm. Hg., the lowest systolic pressure 110 mm. Hg. The lowest diastolic pressure was 70 mm. Hg. and the highest was 100 mm. Hg. While the greatest pulse pressure noted was 55 mm. Hg. and the lowest 35 mm. Hg. The average of all these observations gives an average systolic pressure of 125 mm. Hg., diastolic pressure 85 mm. Hg., and the pulse pressure of 43 mm. Hg., which conform absolutely with the ratio just stated.

Recognizing the fact that the blood pressure readings, which at best vary, and that we must expect a certain range of variation within normal limits, it would seem that, even after allowing a five to eight mm. variation, we have, in the pulse pressure a safe method of estimating the circulatory efficiency, regardless of the height of the systolic pressure, as many records show that, if the systolic, diastolic, and pulse pressures remain at approximately the ratio of 3:2:1, we have a condition of arterial compensation which may be regarded as safe, and in which it is not justifiable, unless for a good reason, to make special effort to reduce the systolic pressure.

In comparison to this, I have taken the readings in twenty cases of cardiovascular and renal disease with high pressures, and have classified them according to their predominant manifestations, as indicated in the legend of Chart 2.

The ages ranged from thirty-six to seventy-one years. The highest systolic pressure was 305 mm. Hg., the lowest 150 mm. Hg. The highest diastolic pressure was 160 mm. Hg., the lowest 30 mm. Hg. The largest pulse pressure was 145 mm. Hg., and the smallest 45 mm. Hg. The general average of systolic pressure was 195 mm. Hg., the diastolic 110 mm. Hg., and the pulse pressure 85 mm. Hg., failing absolutely to conform to the normal rates. We appear to have, then, in the pulse pressure a definite indicator as to the state of the cardiovascular system, which is easily obtained, and which I believe is more dependable than the systolic pressure alone. It is of interest also to note, that the lowest systolic pressure obtained in the normal cases was lower than the highest systolic pressure in the normals, so that we may conclude that the systolic pressure itself may not necessarily be an indication of the state of the cardiovascular system, but that the pulse pressure, which, in every case but one, was much greater than the highest in the normal cases, is a better clinical guide than the systolic pressure.

It is my belief that we have in the pulse pressure a most valuable aid, not only in demonstrating disease in the cardiovascular system, as shown above, but also in demonstrating the effect of treatment.

It has long been noted that in the treatment of the subjective symptoms in high pressure accompanying cardiovascular and renal diseases; that the headaches, dizziness, digestive disturbances, mental confusion, irritability, etc., are not always present in those showing the highest systolic readings. It

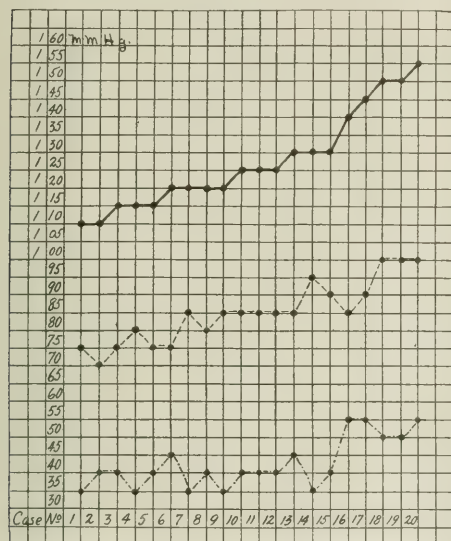


CHART 1.—Shows a series of blood pressure readings in twenty normal individuals selected at random, and therefore represents a fair average. The individuals range in age from 22 to 53 years. A mathematical average of the twenty readings gives an average systolic pressure of 125 mm. Hg., a diastolic pressure of 85 mm. Hg., and a pulse pressure of 43 mm. Hg.

the cardiac output is augmented (as in cases of aortic regurgitation) where the peripheral resistance is maintained. When this change is once established, as the result of defective circulatory conditions (whether myocardial or arteriosclerotic), it persists more or less constantly, until the terminal stages of the disease, when the pulse pressure diminishes, the heart output falls, and signs of right heart failure ensue, while successful attempts to combat this catastrophe are followed by an increase in pulse pressure and a rise in systolic pressure.

I have long held the belief that by the auscultatory method, in normal persons, the pulse pressure should be calculated to one half the diastolic, and that the diastolic pressure should be two thirds of the systolic, giving a ratio between the pulse pres-

is also significant that we may obtain complete relief from these symptoms when the systolic pressure is but slightly affected. This can be explained

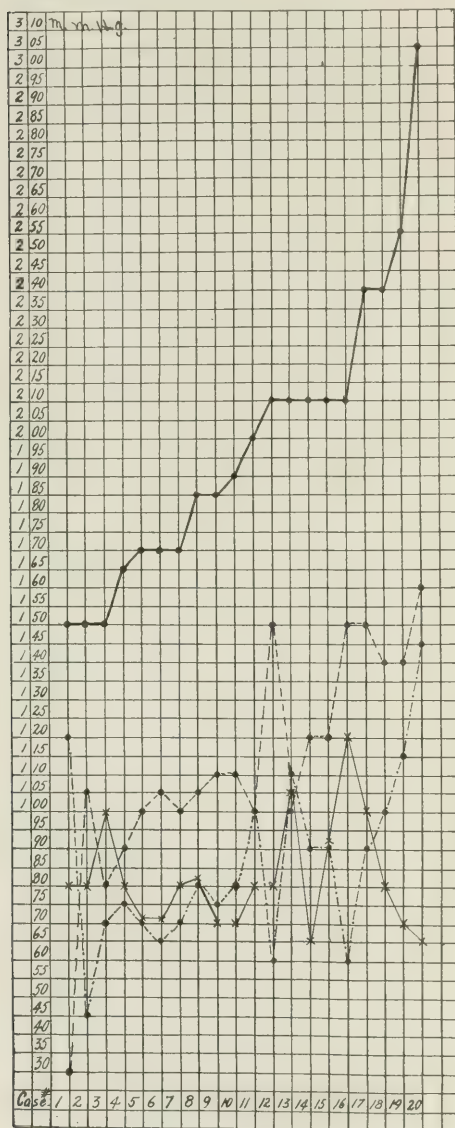


CHART 21.—Represents a series of blood pressure readings in twenty abnormal individuals. In each case the initial observation was used, in order that it might not be influenced by therapeutic measures. The solid line represents the state of the circulation resulting from the pathological condition. Much interesting information may be derived from a comparison of the two charts, the more important points of which are discussed below.

KEY.
1, I. C., age 23, m., double aortic. 2, E. F., age 71, f., mitral regurgitation. 3, C. H. W., age 62, f., angina pectoris? 4, Edwards, age 71, f., chronic myocarditis. 5, J. A., age 38, f., myocarditis, chronic. 6, R. McE., age 50, f., pyothorax, autotox. 7, W. M.,

only upon the ground that we have produced some change in the circulation which is not shown by the systolic reading. I have gone over my cases, and have demonstrated to my own satisfaction that relief from cardiac and circulatory distress comes largely from a modification of peripheral resistance, as shown best by alterations in pulse pressure, and, if we believe with Warfield and others, that the pulse pressure is a rough estimation of systolic output, then the problem becomes very simple, for if we can so modify our circulation by hygiene or other means, as to cause a moderate reduction in the pulse pressure, then we shall have successfully relieved the overburdened heart by allowing it to fulfill the demands made upon it, by minimizing the effort required for a maximum of work done. In demonstration of this, I would cite the following case of chronic myocarditis and arteriosclerosis: the original observations being systolic 210 mm. Hg., diastolic 100 mm. Hg., with a pulse pressure of 110 mm. Hg. After having the case under control for two weeks, the systolic pressure was reduced to 105 mm. Hg., the diastolic to 140 mm. Hg., and the pulse pressure to 55 mm. Hg. This change was accompanied by a complete relief from subjective symptoms and a marked improvement in physical signs. The patient, after six months' absence, presented the original pressure elevation and a return of her old trouble, which again showed improvement when the pulse pressure was reduced.

I am not prepared at this time to say just what changes take place in the circulation which cause this improvement, as we should ordinarily suppose that the wide pulse pressure would indicate an abnormally active heart together with an open peripheral circulation, such as is typical of aortic regurgitation, with an immense systolic output. One can only suppose that there are other factors in the circulation which have not been fully explained and demonstrated; possibly a condition having relation to a more uniform distribution of blood, through changes in the cardiomotor and vasculomotor sympathetics. But whatever the cause, I feel satisfied in my own mind that in this type of case, the subjective symptoms may be relieved by various methods and that relief follows a change in the various factors of circulation, as demonstrated by some reduction in the systolic pressure and a diminution in the pulse pressure, and that of greatest importance to the clinician is the change in the pulse pressure, because cases are met with in which complete relief may be obtained, yet in which the variation in the systolic is far less than that found in other cases which are not benefited by this change.

Since outlining this paper, I have had the good fortune to witness the development of an acute pulmonary edema in an old case of mitral regurgitation with chronic myocarditis.

CASE. The woman was sixty years old in 1912, and between April of that year and November 11th of this, was

age 60, m., Chr. interstitial N. S. A. I., age 53, m., arteriosclerosis. 9, B. M. McG., age 64, m., Chr. myocarditis. 10, Dr. M., age 59, m., arteriosclerosis. 11, W. B., age 65, m., arteriosclerosis. 12, E. W. C., age 54, m., cardiovascular. 13, J. F., age 55, f., chronic myocarditis. 14, R., age 60, f., myocarditis, chronic. 15, E. S. T., age 67, m., arteriosclerosis. 16, M. J. S., age 36, m., acute nephritis. 17, F. M. R., age 46, m., chronic interstitial. 18, S. F. R., age 42, m., arteriosclerosis. 19, C. B. Y., age 60, m., cardiovascular. 20, S., age 52, m., arteriosclerosis.

Solid black line represents systolic pressure, broken black line represents diastolic pressure, line of dots and dashes represents the pulse pressure, and solid line with crosses represents pulse rate.

a constant sufferer from defective circulation, being annoyed by dyspnea, palpitation, slight cyanosis, and moderate edema of the lower extremities. She was able to be about, however, and if careful of her diet and exercise, was able to lead a fairly comfortable life. It was thought advisable during the early part of 1912, to make an effort to reduce the systolic pressure, which on first examination was 210 mm. Hg. The systolic pressure was reduced to 165 mm. Hg. in about one month. Observation made on February 1st of this year, showed the systolic pressure again at 210 mm. Hg., but in the absence of any other serious symptoms, nothing was done at that time, and the case passed for a while out of observation.

On November 11th, in answer to an urgent midnight call, the patient was found semiconscious, gasping for breath, of an ashen hue, and practically pulseless. Breathing was accompanied by an audible series of rales. Over the lungs the normal breath sounds were replaced by large and small bubbling. These sounds were so noisy that it was impossible to determine the condition of the heart by auscultation. After active stimulation, the patient was evidently somewhat relieved, and the blood pressure on the morning following was found to be 130 mm. Hg., systolic and diastolic 90 mm. Hg. By one p. m. on the same day, the patient was apparently sinking with a systolic pressure of 120 mm. Hg. and a diastolic of 100 mm. Hg., pulse pressure 20 mm. Hg. Respiratory embarrassment was again extreme. Renewed efforts of hypodermic stimulation, including nitroglycerin, resulted by 8:30 p. m. in marked improvement, with a decided reduction in the pulmonary edema, and the pressure was 120 mm. Hg. systolic, 70 mm. Hg. diastolic, and pulse pressure 50 mm. Hg. The following day the continued use of nitroglycerin had forced the systolic down to 110 mm. Hg., but fortunately the diastolic pressure remained at 70 mm. Hg., allowing of an adequate pulse pressure of 40 mm. Hg. Since that time, the case has rapidly progressed toward a condition of better compensation. The pulse, while still irregular, is fairly constant, the lungs have entirely cleared up, the heart sounds are improved, and the mitral regurgitant murmur has returned. During this time there has been a progressive rise in the systolic pressure and a continued increase in the pulse pressure. This has come from 40 mm. Hg. to 50 mm. Hg. then to 65 mm. Hg. and then to 75 mm. Hg.

The important points in connection with the blood pressure in this case are as follows: 1. The extreme fall in systolic pressure coincident with the development of acute circulatory failure, and the great reduction in pulse pressure. The persistent gravity of the situation accompanying the extremely small pulse pressure of twenty mm. Hg. 2. The marked improvement accompanied by an increase in pulse pressure, despite the failure of the systolic pressure to rise immediately. 3. Finally, the rapid improvement accompanying the steady increase in pulse pressure.

These points bear out the assumption that an adequate pulse pressure is essential for a fair working of the heart, that the evidence obtained by the pulse pressure readings is a better indication of the condition of the failing cardiovascular cases than the systolic pressure, and that immediate favorable prognosis may be based upon an adequate pulse pressure, even in the presence of a stationary or only slightly variable systolic.

The message which I wish to leave with my readers, is a plea for the routine use of the complete blood pressure observation by the auscultatory method, from which the pulse pressure may be estimated, and to call to their attention the apparently predominating importance of the pulse pressure in diagnosis, prognosis, and treatment of cardiovascular and renal cases.

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AN ANALYSIS OF NARCOTIC DRUG ADDICTION.*

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When some years ago, I was appointed to the position of resident physician to the alcoholic and prison wards of Bellevue Hospital, my definition of narcotic drug addiction would have voiced the popular and generally accepted conception. I should have called it a condition based on some inherent weakness of will power and mental stamina; a condition arising from the habitual use of a narcotic drug which caused a deterioration and degeneration of the physical, mental, and moral being; an abandonment of the individual to the pleasure derived from sensuous indulgence; a habit; a vice; a morbid appetite to pander to which the debauchee would go to any lengths, and, lost to self respect, did not wish to escape from his degrading thrall-dom.

A few months of bedside observation and effort showed me how far this conception fell short of clinical fact. Literature and questioning of existing authority failed in the explanation of obvious manifestations. In the end I put preconceived bias and previous conception out of my mind and approached the plentiful clinical material for my solution. What I have learned is from the study of the narcotic drug addict as a clinical problem, viewing him as a sick man, listening to his history and his statements of narcotic drug action, watching his clinical manifestations and interpreting them in the light of physical action and reaction. Since leaving Bellevue I have retained my interest in narcotic drug addiction, and the cases in my service as visiting physician to the Workhouse Hospital and such as I have seen in private practice or in consultation, have gradually clarified and classified my ideas and increased my ability to relieve the addict of his affliction.

In offering this analysis I am simply giving the results of personal experience and effort to interpret physical effect upon a basis of physical cause. My own results have been gratifying, and there seems to be no reason why many others should not proceed upon the same principles until something better is offered.

My present definition of narcotic drug addiction is as follows: A definite physical disease condition, presenting constant and definite physical symptoms and signs, progressing through clean cut clinical stages of development, explainable by a mechanism of body protection against the action of narcotic toxins, accompanied by inhibition of function and autotoxemia, often displaying deterioration and psychoses which are not intrinsic to the disease, but the result of toxemia, malnutrition, anxiety, fear, and suffering.

In elaboration of this definition I shall first take up the existence of a definite physical disease peculiar to the continued use of narcotic drugs. In

*Read before the New York County Medical Society, December 28, 1911.

this part I shall use morphine as an example because in it are displayed most spectacularly and clearly the phenomena and symptomatology peculiar to addiction. In observing a number of addicts over a length of time, one cannot escape the recognition of a chain of constantly present physical manifestations inevitably following the nonadministration of the drug. These may vary in priority of onset, in sequence, and in relative violence of manifestation in different cases, but they are the inevitable result of nonadministration of morphine to a morphine addict. They constitute what are called the "withdrawal signs." To quote from a previous paper,¹ "in a general way they may be said to begin with a vague uneasiness and restlessness and sense of depression; followed by yawning, sneezing, excessive mucous secretion, sweating, nausea, uncontrolled vomiting and purging, twitching and jerking to violent jactitation, intense muscular cramps and pains, abdominal distress, marked circulatory and cardiac insufficiency and irregularity, pulse going from extremes of slowness to extremes of rapidity with loss of tone, facies drawn and haggard, pallor deepening to grayness, exhaustion, collapse, and in some cases death.

These are the physical manifestations of nonsupply to the morphinist. They are present whether the patient is an inherent degenerate, a neurotic weakling, or a giant of physical, mental, and moral stamina and endowed with unlimited power to endure suffering. They cannot be explained upon any basis other than physical mechanism and material cause and effect. They are not present in any disease other than morphinism, though they bear a very striking similarity to overwhelming poisoning from violent toxins, mineral, vegetable, animal, and autogenous. They are opposite in their manifestations to morphine action. They are instantly relieved by the administration of morphine in sufficient quantity and by no other means. They constitute a symptom complex peculiar to morphine addiction and label it as fundamentally and basically a definite physical disease process. Similar though not identical phenomena occur in the withdrawal of nicotine and alcohol, less violent and less spectacular, but none the less present.

STAGES OF ADDICTION DEVELOPMENT.

Every case of well developed addiction has followed in its development a course through several stages definitely marked by clinical signs and reaction phenomena. These stages I shall not have time to discuss exhaustively, but they will be recognized by most of those who have seen much of the drug used.

1. *Stage of normal reaction to therapeutic and toxic doses.* The manifestations of this stage, in morphine for example, are more fully described in our textbooks of materia medica than I can take space for, and are familiar to all. The narcotic and analgesic effect with therapeutic doses; the euphoric and inhibitory action of doses in excess of the therapeutic; the toxic action manifested by the slowed pulse, slowed respiration, and generally ar-

rested metabolism are too familiar to need elaboration.

2. *Stage of increased tolerance.* Following continuous and consecutive administration of morphine (and the same is true of the other narcotic drugs) comes failure to secure the effect which followed the early administration. Larger doses are needed for the relief of symptoms, or the original doses give relief for a shorter time. Toxic manifestations do not follow what would formerly have been a toxic dose. The patient requires what was formerly a toxic dose to secure the former therapeutic effect. The phenomena of this stage are familiar to every observing clinician who has used or seen morphine used for continued therapeutic action. Every chronic smoker and every user of alcohol has passed into it before he can tolerate those drugs in any appreciable amount. The narcotic user has acquired an increased tolerance of the drug and a beginning immunity to its toxic action. He does not, however, suffer appreciable hardship from drug deprivation. Discontinuance of the drug causes little or none of the symptoms previously described as "withdrawal signs."

3. *Stage of beginning addiction.* Following the stage of increased tolerance comes a stage where discontinuance or lack of administration of the narcotic drug gives definite signs and symptoms, beginning "withdrawal signs," due to some beginning physical body demand for the drug and relievable only by its administration. These signs are identical with the first appearing withdrawal signs in a case of established addiction, but as yet do not go beyond the early manifestations. They are limited to a peculiar nervousness, restlessness, weakness, depression, etc. They persist for a few days only if the drug is denied.

4. *Stage of established addiction.* In this stage the "withdrawal signs" become more evident as results of narcotic deprivation. They proceed through the mild discomfort and nervousness of the previous stage to the definite manifestations and constant unmistakable withdrawal signs previously described. The patient endures physical agony and displays all the clinical evidence of it. There can be no question of will power in this stage, nor of desire for narcotic drug for any other purpose than to escape the agony of suffering. Whether the patient was primarily an innocent and unconscious user of the drug or of the class of the vicious and weak, he is now fundamentally a sick man afflicted with a physical disease. Whether or not he ever experienced any euphoria or sensuous enjoyment (and a tremendous proportion never have) he now gets nothing of pleasure from narcotic administration. He gets, simply, relief from suffering. The primarily narcotic drug has become for him a stimulating drug; his *only* means of securing and maintaining a physical efficiency, a semblance of normality. No other drug will take its place. He can take tremendous doses without toxic effect. In this stage, if the drug is denied or withdrawn without competent handling, his suffering is not as in the previous stage, a matter of days, but persists for weeks and months after no narcotic has been administered.

¹Narcotic Addiction: A Systemic Disease Condition, *Medical Journal*, February 8, 1913, p. 133.

There are further and subdividing stages to be differentiated in the development of the narcotic drug addict. For the purpose of this paper, however, I shall not go into them. Most of our patients are in the stage of developed addiction when they are recognized or come to us for treatment. Developed addiction for a narcotic drug means physical bodily need for that drug; functional incompetency and suffering without that drug; comparative normality and efficiency only to be secured by the continued use of that drug.

Before I attempt explanation of the mechanism which seems to me best to explain and offer a basis for the rational handling of the condition, I shall offer a few observations bearing upon action and reaction in the stage of addiction.

1. Experience shows that the length of time over which a sufferer is free from his withdrawal agonies is in proportion to the size of his last dose. If one grain of morphine will keep the addict comfortable for four hours, two grains will do this for nearly eight hours, and three will have the same effect for about eleven hours. It would almost seem as if there was some substance produced in definite amount in the individual case at a given time, and neutralized by a definite amount of the narcotic drug.

2. Each addict shows a definite and measurable daily minimum need for the narcotic drug of his addiction. If he is suffering the agonies of deprivation above described, he will require a definite, certain, and measurable dose before he is made comfortable and physically efficient again.

3. The narcotic drug administered to an addict suffering withdrawal agonies, will relieve those agonies exactly in proportion to the amounts of drug administered. Each addict has a constant sequence of symptoms attending the so called "dying out" of the drug. These symptoms are relieved in constant reverse sequence by the administration of the drug, and in exact proportion to the amount of drug administered. A small amount of drug will relieve the symptoms last appearing; another insufficient amount will relieve another proportion of the withdrawal signs, and so on until the narcotic drug administered balances in amount the extent of the addict's deprivation. This is almost mathematical in its working, and an addict after a few trials can tell within a very close margin just how much morphine has been administered by the extent to which it relieves his withdrawal signs. It almost seems as if the narcotic drug acted as an antidote for some poison present in definite amount in the addict's body.

ESSENTIAL MECHANISM OF NARCOTIC DRUG ADDICTION.

For the explanation of such clean cut, strikingly apparent, constant, and undeniably physical phenomena and symptomatology as I have described above, there must be some physical mechanism, some definite body process working upon fundamental principles of disease reaction. They certainly are not psychiatric manifestations nor the expressions of habit, appetite, vice, nor morbid indulgence. Enjoyment of morphine for itself, in such patients as have ever experienced such enjoy-

ment, is lost long before the stage of rooted addiction is reached. We must explain physical result by physical cause.

My own solution,² advanced as a working hypothesis three years ago, I shall briefly outline. Its more detailed exposition and arguments are in print and can be read by those interested. Tolerance of, and immunity to the toxic effects of narcotic drugs are primary and striking characteristics in the development of addiction. An antitoxin or antidotal substance is the recognized mechanism of production in most diseases, admittedly developing these characteristics. I advanced the hypothesis, therefore, that an antidotal substance is manufactured by the body as a protection against the poisonous effects of narcotic drugs constantly administered. If such a substance were manufactured in the body, being antidotal to morphine, it might well possess toxic properties of its own exactly opposite in manifestation to those possessed by morphine. Toxic manifestations exactly opposite to morphine might readily account for the severe withdrawal signs, parallel in their direction to the manifestations of acute poisoning.

A hypothetical antidotal toxic substance, manufactured by the body as a protection against the toxic effect of continued overdosing with a narcotic drug, will therefore explain the well known development of tolerance and immunity in these cases, and will account for the violent physical withdrawal signs. In a word it will explain the disease fundamentals on a definite physical basis.

Such an hypothesis will explain the stages of development of addiction above noted. In the stage of tolerance the antidotal toxic substance has begun to make its appearance in the body and to protect it against slight narcotic overdosing, but its manufacture is not sufficiently established to continue longer than necessary to neutralize the narcotic administered. In the stage of beginning addiction, or beginning narcotic need, its manufacture has become more developed and more constant and proceeds for a longer time after the discontinuance of the narcotic drug. In the stage of fully developed addiction, or absolute narcotic need, the manufacture of the antidotal toxic substance has become practically an established pseudophysiological body process, and will continue long after the last administration of the narcotic drug for reasons into which I have gone elsewhere. In other words, in narcotic drug addiction some antidotal toxic substance has become the constant toxic poison, and the narcotic drug has become the antidote administered for its control. In brief, fundamentally and basically, narcotic drug addiction is a condition presenting definite physical phenomena, symptoms, and signs, due to the presence within the body of some autogenous poison requiring the narcotic drug for its neutralization.

This explains the phenomena of the mathematical exactness with which the minimum daily need can be estimated, and with which known partial doses relieve definite proportions of the withdrawal agonies. In exact proportion as the original narcotic drug is present in the body to neutralize some antidotal poison, is the patient free from withdrawal

²Narcotic Addiction: A Systemic Disease Condition, *Journal A. M. A.*, *loco citato*.

symptoms and from physical craving for the narcotic drug.

The development and existence of some such mechanism in the body also account for the tolerance which persists after successful treatment has relieved the patient of his narcotic desire. For an indefinite period he maintains his tolerance and can take at any time toxic doses of the narcotic drug without toxic effect. More than that, for an indefinite period also, very slight indulgence in the narcotic drug will reawaken complete addiction or body need, and almost immediately reestablish it fully developed. The antidotal toxic mechanism, once developed, lies always ready, just as is the case with the recognized antitoxic mechanism in other diseases conferring tolerance and immunity.

This mechanism theory, advanced and elaborated in my paper, *Narcotic Addiction a Systemic Disease Condition*, has been adopted by Dercum in the last revision of Hare's *System of Therapeutics*. It has also been adopted by other writers. Right or wrong, purely hypothetical as it is, it at least offers a working basis in physical explanation of definite disease manifestations.

INHIBITION OF FUNCTION.

What characteristic action exists in narcotic drugs which gives them this power to establish the above described mechanism? It seems to me that it is above all their power to inhibit body function. They markedly arrest metabolic processes. They inhibit glandular activity. They inhibit unstriated muscle action and hence peristalsis. They therefore cause a slowing up of glandular and intestinal elimination. This results in an accumulation of drugs, or of products of the drugs, and a constant residue existing in the body. It is this constant residue to which the body must become tolerant, by the development of some mechanism for its protection.

AUTOINTOXICATION.

It is to the element of inhibition of function that we must look for an explanation of what is by far the most important element in the immediate picture presented by most of the individual cases. I refer to autotoxemia. The same power that locks up within the body the narcotic drug, locks up the toxic products of tissue waste and of insufficient metabolism. Autotoxemia itself is markedly inhibitory in its action, and contributes no little to its own increase and to the further development of narcotic disease.

Upon the extent of inhibition of function and autointoxication, therefore, depend the predominating manifestations in the individual case and the measure of disease in the individual sufferer. They contribute the immediate and compelling indications for rational therapeutic endeavor. To a great extent they determine circulatory efficiency and metabolic balance. They largely control physical tone and physical reaction. Inhibition and autotoxemia cause most of the physical and mental deterioration, and much of the symptomatology so widely ascribed directly to narcotic drug effect. Upon the extent of their presence depends greatly the clinical picture in the individual case. With inhibition and autotoxemia eliminated or reduced to a minimum, the patient can go through many years an apparently

normal man, well nourished, reactive, in good physical tone, mentally and physically sane and competent. He shows practically nothing abnormal as long as he gets properly administered, his accustomed narcotic drug, in the amount of its minimum need. His condition is often unsuspected by those nearest and dearest to him, and in the case of alcohol and tobacco, often by himself. With inhibition of function and autointoxication marked, and the narcotic drug in excess of body need, the sufferer becomes a deteriorated wreck, requiring high doses for the satisfaction of his body need, mentally and physically incompetent, the generally accepted picture of the so called "dope fiend" or "sot," a deteriorated, degenerated, malnourished wretch, degraded, avoided, and condemned.

Inhibition of function and autointoxication are not vague terms. They cause, and are measurable by definite clinical evidence. They display manifest phenomena and symptoms, and become increasingly defined and material entities as the clinician looks for them as such. Space is lacking for a detailed discussion of them. Much of inhibition of function and autointoxication and of their manifestations, has been recognized and taught under their own heading and in connection with conditions other than narcotic drug disease. That the influence and importance of inhibition of function and autointoxication in the development and manifestations of narcotic drug disease has escaped general and widespread recognition, is evidence of the small amount of unbiased clinical study, and of analytical clinical interpretation of material phenomena, hitherto accorded to narcotic drug cases.

To Pettey, of Memphis, we owe the earliest published analysis of the effects of inhibition of function and autotoxemia, and of their competent appreciation and handling in narcotic drug disease. If I had read his writings *before* I became discouraged in my search of literature for explanation of clinical fact, I should have arrived at an earlier understanding and saved myself much of day and night worry and work. In common with others, however, who travel the royal road of other men's work, I should never have obtained the details of appreciation which come only from personal effort in observation and analysis. The final result, however, has been the same; for Doctor Pettey and myself are practically in accord, and our conceptions, conclusions, and methods, though independently reached, are practically identical. To him, however, belong the laurels of the pioneer.

My own work in narcotic drug disease began with my appointment as resident physician to the alcoholic and prison wards of Bellevue Hospital. I early attempted sudden deprivation and hastily abandoned it. I then struggled with the time honored method of gradual reduction, and substitution of other drugs to replace narcotic drug action, and my results were anything but encouraging. I later tried the routine known as "Towns treatment" as published by Alexander Lambert. An occasional case did well, but the routine was not satisfactorily applicable to the widely varying conditions to be met. To the Towns treatment, however, I owe indirectly some of my subsequent progress. From analysis of its mechanism and study of patients under its treatment, made in the effort to avoid its

hardships and failures, I acquired some appreciation of narcotic disease itself.

The search for panaceas, specifics, and routine treatments constitutes a stage in the therapeutic history of most disease conditions. It marks the effort to apply partial comprehension and imperfect recognition of fundamentals, and is successful only in so far as the individual case is capable of responding to the routine employed. It inevitably gives way to broader realization of fundamental disease principles and manifestations, and their rational handling on broad therapeutic lines.

As to treatment, I can say but little in this paper. It depends upon rational appreciation and measure of narcotic drug need, and of inhibition of function and autotoxemia in their varying and interacting manifestations and symptomatology. It resolves itself into the rational care of the individual case. Supply the drug of body need as long as it is necessary, and in such amounts as are useful in the maintenance of body function. Do this at sufficiently wide intervals of administration to minimize drug inhibitory effect. Combat inhibition of function by strychnine in such doses as the toxic case requires. Combat inhibition of function also by relieving the patient of suffering, worry, unjust criticism, fear, and anxiety, and by showing him that you have a different conception of his trouble than the one he has heretofore met. Combat autotoxemia by intelligent elimination, based on individual reaction, being very careful not to exhaust eliminative ability by depleting overadministration of ill advised and ill timed catharsis. When the patient is in a condition of satisfactory reaction, sweep out the residue of drug and autotoxins; easing the removal reaction, when and as necessary, by the administration of an alkaloid of the belladonna group, preferably hyoscine or scopolamine. Remember at all stages that toxic and narcotic drug patients react differently from normal men to all medication, and that medication must be administered with a watchful eye on the patient's varying reaction.

To him who is handling a case of narcotic drug disease, I want to sound one note of warning. Let him not consider the mere taking of a narcotic drug by his patient as anything but the satisfaction of a physical need, a medication administered to meet disease indications. Let him keep his mind on the fundamental disease and not on the narcotic administered. Narcotic drug use by a narcotic drug patient does not constitute his disease, nor does the mere deprivation of the drug constitute the cure. Physical need for a narcotic drug may exist for weeks and months following incompetent withdrawal of that drug and is responsible for very many, if not a majority of the relapses. Administer the narcotic drug to your patient in sufficient quantities to meet indications, and do not try to reduce the amount of the drug until you have reduced the extent of physical need for it. General tone and metabolic efficiency and adequate elimination are of far more importance than the mere fact that your patient takes a smaller amount of his drug.

Analysis of the mental manifestations, I have written of before. What deterioration is present is, as a rule, simply the manifestation of autotoxemia, malnutrition, anxiety, fear, and exhaustion. It is too often the indirect result of our attitude toward

the sufferer, and failure to administer rational care and instruction and understanding help to the patient. Mental deterioration manifestations are more readily explained by medical common sense, cause, and effect, than by psychiatric classification, and far better so treated. If there is an inherent defect left as a residue after competent medical treatment, then is the time to treat it. It will be found absent in an astounding number of cases.

We have only begun to scratch the field of narcotic drug disease. Its further culture will undoubtedly develop basic medical fundamentals of wide application. Every new appreciation opens up new paths of speculation and possibility. For the present and in future, success in the field will not be found in any routine method, nor will it be found in psychiatric consideration and handling. These apply and are useful in selected cases. Success will attend the physician in exact ratio to his clinical ability, training, and experience, and to his familiarity with the methods and remedies used to meet basic indications, and to his broad humanity and common sense vision.

Anything more would be in the nature of an anticlimax. The main point to be kept in mind is that narcotic addicts are sick; sick of a definite disease. The disease is complex and widely variable in the individual cases. Fundamental disease cannot be cured or handled by mental, moral, or psychiatric approach. Any toxic, worried, sick man may show mental complications, but handling complications will not cure basic disease. There is not and never will be any specific routine treatment applicable to any complex and variable disease condition. We shall save much public money, and personal effort and time, and shall save the narcotic drug addict much suffering and discouragement, and shall add much to human health, competency, and happiness when we realize this fact and proceed upon it in a spirit of broad humanity and of rational clinical study of obvious symptomatology. Narcotic drug addiction is a definite, curable disease in its fundamentals. It should be widely so regarded and so treated.

151 WEST EIGHTY-FIFTH STREET.

NARCOTIC DRUG ADDICTION.*

BY GEORGE E. PETTEY, M. D.,
Memphis.

I wish to congratulate the essayist upon the original work he has done in the study of narcotic drug addiction and upon the manifestly correct conclusion he has reached. This paper entitles him to the credit of being one of three men who, during the past thirty-five years, have made material contribution to the study of the subject. Had such a classical paper as this been available sixteen years ago, when I took up the study of the subject, I should have been saved many anxious months groping in the dark, seeking to find some rational interpretation of the varied phenomena presented by narcotic drug users when deprived of their normal drug supply.

*Read before the New York County Medical Society, December 14, 1914, as part of a discussion of Dr. Ernest S. Bishop's paper, *An Analysis of Narcotic Addiction*.

The literature of this subject has been, until recently, the most disappointing of any with which I am acquainted. Most writers have classed drug addiction as a "vice," a condition of moral degeneracy. Others classed it as a neurosis, and attributed the various distressing and complex symptoms arising from withdrawal of the drug to some obscure nerve lesion, which, however, they were never able to demonstrate.

At the time I took up the study of this subject I had before me a concrete example; a case in which I knew no element of vice entered into the formation of the addiction nor into its continuation. This early led me to reject the vice theory, and a little experience also soon led me to see that the condition was not a neurosis. Reaching these conclusions enabled me to approach the subject with a much less clouded field of vision, but did not at once furnish an answer to the burning questions, What is the matter with the patient? What pathological conditions underlie the symptoms presented in her case, and What can be done for their relief?

In my endeavor to find an answer to these questions, the fact that she was using a narcotic drug was dismissed from immediate consideration, and an examination was undertaken with the purpose of ascertaining the condition of every organ and function of her body. This examination revealed marked functional derangement, especially of the gastrointestinal tract; the breath was foul, tongue coated, bowels constipated, liver enlarged, portal system engorged, skin dry and sallow; in fact, every evidence of profound intestinal and autointoxication was present. At this juncture was asked, If this patient were not using a narcotic drug, what would be the indications in treatment? There could be but one answer, Cleanse the system from toxic matter.

Before undertaking this, the classic article of Wilson in *Pepper's System of Medicine* and other writings on the subject were examined to ascertain if elimination by purgation or otherwise was recommended in the treatment of drug addiction, but no intimation of the value of, or necessity for the use of purgatives could be found. Having made a diagnosis of at least a part of the patient's ailment, however, it was decided to treat that part of the ailment according to the general principles of medicine.

Purgatives of the composition and doses usually employed were given, but the results were not satisfactory. Instead of acting as they would on a patient in ordinary conditions, they caused much irritation in the stomach and upper intestinal tract, but no thorough movement of the bowel. The nausea, vomiting, colic, and other disturbance excited by the purgative were so severe that it was necessary to give a full dose of the opiate to secure relief and that dissipated any hope of efficient action of the purgatives. Larger doses of the more active cathartics increased the nausea, vomiting, and other distress, but did not empty the bowel. After repeated failure successfully to carry out even this step in a rational treatment, the cause of these failures began to dawn upon me.

Further examination of the patient showed al-

most entire absence of intestinal motility for a period varying from five to eight hours after the administration of each dose of the drug of addiction, and it soon became evident that intestinal atony and not deficient secretions accounted for the failure to secure free purgation. While peristalsis was almost entirely absent for the first five to eight hours after each dose of the opiate, intestinal motion gradually returned and increased until it was again suspended by another dose of the opiate. This intestinal motility, being merely normal peristalsis, was not at first painful, but as the effect of the opiate was more fully exhausted, intestinal motility became more and more active and soon excessive. This activity increased as the narcotic impression subsided, until the patient's suffering from intestinal colic and other gastrointestinal disturbance was so great as to demand the administration of the drug to which she was addicted. No procedure gave relief but the administration of the opiate in sufficient quantity to relieve the patient arrested peristalsis, thus suspending one of the functions essential to bowel movement.

A little reflection led me to see that the problem with which I was confronted, was that of restoring normal or efficient intestinal motion in spite of the restraining effect of the opiate. Reflex stimulation, excited by purgatives (chemical irritants) having not proved sufficient, strychnine was given with the purpose of exciting intestinal motion by direct stimulation of the motor centres. Ordinary medicinal doses were tried, but made but little impression, but feeling confident of the correctness of the principle under which I was acting, larger and still larger doses of strychnine were given, and this was persisted in until the motor centres were fully aroused, the semiparalyzed condition of the intestine overcome, and efficient peristalsis excited and maintained.

With this function restored to activity, it was found that the purgatives, which failed to act before, now acted as promptly and efficiently as if the patient were not addicted to a narcotic. The information thus acquired enabled me thoroughly to clean the system of my patient of toxic matter, and when that was done, not more than one fourth of the quantity of opiate formerly used was necessary to meet the demands of the patient and keep her in comfort.

While this was recognized as an advance step of great importance, its full import was not then understood. A few days later the last of the opiate was withdrawn, but to my surprise the suffering, formerly so severe, did not occur. True, in from twelve to eighteen hours from the time of giving the last of the opiate, the patient was restless and uncomfortable, but there was no colic, nausea or other gastrointestinal disturbance, and certainly no approach to shock or collapse. In fact the case was so simplified and the severity of the complications so mitigated, that it was an easy matter to relieve the patient of what discomfort she then suffered and to carry the treatment on to a successful termination.

The employment of this plan of treatment in a few cases, led me to place the proper estimate on

the toxic element as a pathological factor in these cases, but about 150 cases were treated before I reached the conclusion which I have since held, which is, that the essential pathology of narcotic drug addiction is toxemia, the toxins being of drug, intestinal, and autogenous origin. This conclusion was reached about fourteen years ago, and I feel sure that it will stand the test of time.

Having reached definite conclusions as to the classification and pathology of narcotic drug addiction and advanced in the treatment to the stage above indicated, other essential steps in treatment were worked out according to the well established principles of medicine, and I have for a number of years held narcotic drug addiction to be the most certainly and readily curable of all the chronic ailments.

Narcotic drug addiction is, essentially, not a neurosis, a psychosis, or a vice, but is a systemic disease, functional it may be true, but a disease nevertheless, one which yields promptly and completely to rational treatment based upon well established physiological laws without the intervention or use of any so called "specific" or "red fire" of any kind.

The fact that the essayist, who as resident physician to the alcoholic wards of Bellevue Hospital, personally studied and analyzed thousands of narcotic cases under conditions of continuous day and night observation and arrived independently at conclusions identical with my own, is evidence of the correctness of our reasoning. No progress was made either in his work or in mine until the erroneous character of the current teachings was recognized and an independent and unbiased clinical study of the drug addict, as a sick man, was begun. Then and only then did the truth begin to be apparent.

DRUG HABITUÉS.

By SIEGFRIED BLOCK, M. D.,

New York.

Sociological development is marked by waves. We have just passed through a strenuous wave of sex hygiene, its existence manifested in vulgarity of dress, speech, dance, and other behavior, its crest—a new and wholesome attitude toward the bearing of sex on life, and an open study of the problems involved. We have had a battle with gambling and have made progress. This wave also had a high and low level. The pure food campaign against food adulteration may also be pictured in the same fashion. It is noticeable that, as these questions engage general attention, much interest is invited on the part of those who become susceptible to that unfortunate condition which is in the process of reform.

One of our important waves today is the endeavor to break down traffic in habit forming drugs whose evil we all know. The greater the publicity that is given to the campaign, the more drug victims are developed; and, as much of our life is the result of association and imitation, these new recruits are new influences for followers. Hence the enormous recent increase in the drug traffic. But the service

of the movement will be manifest in the better understanding and greater power we have to cope with the evil.

The writer's experience has revealed the following order of frequency of drugs taken, alcohol, heroine, cocaine, morphine, and hashish. The difficulty of permanent cure follows the same order. Almost every layman knows where for money he can obtain one of these drugs beside alcohol. Among the places where considerable amounts are spread broadcast are the various chemical works. Positive evidence exists that some of the larger establishments which manufacture the goods in bulk or even in small vials, especially in powder form, are continually being robbed by their employees. Girl employees meet their sweethearts after working hours and distribute no small quantity. These girls are often very poorly paid and their real living is made in this unwholesome traffic.

A few drug stores have arrangements with certain physicians and dentists, who for a consideration regularly write a batch of prescriptions to protect all hands. Often a physician's prescription blank is copied and the signature forged. These blanks may be stolen or otherwise obtained at certain drug stores. To prevent suspicion often mixtures instead of plain "dope" are prescribed. Usually the venders are also fiends, or have runners who are fiends. These may steal from the quantity ordered and substitute another drug. For example, quinine or strychnine is diluted with milk sugar and the bitter taste is depended upon to fool the purchaser of supposed heroine. The subject finds a *yin yen*¹ coming on and he buys more of the diluted stuff; so he feels that he needs a bigger dose than previously. This explains how in some cases they change over night from two grains daily to five or six. It is almost unbelievable that a few so called first class drug stores will sell a "sniff"² or a "jab"³ for fifty cents if the patient takes it behind the prescription counter.

There are all kinds of fantastic ways in which drugs are obtained and only a few not generally brought to light have been stated. The writer has known girls and boys who learned to take "dope" while in penal institutions. Orderlies, hospital helpers, nurses, and even interns have been accused. The author has now under his care the matron of one of the largest hospitals in the city who takes morphine. The fact that she gets her "dope" so easily in the hospital is proof that one ought to consider more surveillance in such places. It is impossible in a short paper to cover the smuggling into institutions of drugs. Letters written and soaked for a while in solutions of a drug reach many inmates who chew these words from dear friends. Clean handkerchiefs with drugs in the hem; envelopes sealed with a paste which is "doped," and a dozen other schemes are brought to light daily.

In order to appreciate the condition of these people, let us for convenience review the difference between custom and habit. "Custom presupposes

¹"Yin yen," symptoms following loss of depressant—as morphine or heroine.

²"Sniff."—Heroine and cocaine are placed in a small heap on the back of the hand and inhaled.

³"Jab."—Hypodermic injection, usually of some form of opium or cocaine.

will," says Webster, "while habit is part of our being, a kind of second nature which grows up within us." Habits are the result of repeated acts which soon become part of one's state of being, as it were. The more firmly the habit is established, the closer it becomes part of the individual's self. The habits of sleeping at night, coffee at breakfast, urinating before retiring, washing on arising, etc., are good examples of habits. We all know of persons who have none of these, yet it is safe to say that most of us would be uneasy, perhaps would not be able to do the day's work properly if any of these was omitted. It would be much worse if two mornings were thus passed. Many of us simply cannot sleep if we do not urinate before going to bed. A parallel state of affairs is present when one has any habit, be it masturbation or use of any of the drugs mentioned. Only with drugs the condition is considerably exaggerated.

Normal persons will never become drug habitués. This is one other phase of the subject we must not overlook. The author has found it convenient to divide all cases into two great groups; first, those whose trouble is like a neurasthenia, if there is such a sickness; second, those who have a definite hysteria. Most of the cases belong to the hysterical class. These are treated like any other hysterics, and the certainty of permanent cure is the same. The main point is to make a careful study of the case, why and how the habit started, what physical affections have been wrought, etc. In short, we must try to make a diagnosis beside recognizing a mere symptom that the layman knows as well as his doctor. Many cases of major hysteria are cured by suggestion in some form, many are only temporarily cured, and this is true of drug fiend cases. Likewise, as many cases of stuttering or other hysterical phenomena are acquired by imitation, so it is with these cases.

In the neurasthenic type, as in other neurasthenias, we have the feeling of unrest, the desire for something not at hand, pessimistic unhappiness, inability to concentrate on any subject, seeing only the dark side of life. Like any neurasthenia it may originate from a series of misfortunes, real or imagined. These people become self conscious, shun society, threaten suicide, take big chances on important undertakings, and seek unnatural means to appease their terrible feelings. In despair they begin the use of drugs to get oblivion, having read or having been told of a feeling of well being following their use. How often are we told of the drunkard trying to "drown his sorrow."

One peculiarity of habit forming drugs is that the more the body contains, the greater the desire to get more of the drug. A taste of his alcohol and the drunkard cannot stop even if he must sell something to get the price. The later effects are fourfold: 1. An increase of this same desire. 2. The body has accustomed itself to a certain state of equilibrium when the drug is taken. For example, when a depressant is taken continually and an individual is kept nearly normal in his bodily sensations, should this depressant be omitted, the body reacts as if a stimulant had been given to a normal person. To illustrate: If one needs a definite amount of morphine to keep the body quiet and half be omitted a sensa-

tion similar to a dose of stimulant perhaps like strychnine will be experienced. Excitement, pains in the back and calves of the legs, neuralgia, head and gum ache, running nose, dilated pupils, at times convulsions, all follow the sudden stoppage of morphine. These factors make a demand on the economy for more of the drug. 3. The physical wrecking that comes from a long continued abuse of Nature. 4. The mental condition: (a) The consciousness of the desire to quit the drug, (b) the constant fear of being detected, (c) the stunted mentality causing inability to compete with one's fellows, resulting in loss of employment, poverty, crime, etc.

It is interesting that such a large number of people seek to experience the feeling of a drug habit. They want to experience the sensations of a fiend. Before they have the habit, they are positive that they can stop at will and boast that it took several months or, as one told the writer, two years' daily use, before there was real addiction. They may acknowledge what they wanted was a certain "feeling," a peculiar something. Another may tell how he could not sleep at night, and a friend advised him to use a drug. He obtained a good result and continued to increase the dose until he had the habit. He never sought out the cause of his insomnia.

It is rare to find only one habit. Some masturbate excessively for a long time, become self conscious, and friends offer a strong drink or other "dope" to prevent this desire. It succeeds, but only to be the beginning of a downward journey. A physician who told the writer he took caffeine to keep awake at obstetric cases, which he had very often, after a time became a nervous wreck; he trembled, his stomach was upset, etc. At first acetanilid, then sulphonal, and now morphine is his only aid. Three months ago this doctor used twenty-eight grains hypodermically daily. He is also a heavy tea drinker; perhaps because he is a Russian. He is an excellent example of the neurasthenic type. How firmly a habit may become entrenched words cannot describe. On Sunday, October 25, 1914, at 5:30 p. m., a young man of fair education and good parentage sought my aid to help him quit sniffing heroine. After talking with him a full hour he replied, "I'll shoot the first man who offers me heroine again! I am willing to go to the chair for it! I have done now! I don't care how I suffer; once for all I have quit. Here's one hand, here are two hands, I place them on the Bible, I swear its ended!" We shook hands and he departed. The arrangement we made was that he should call at the office if he became too nervous rather than take any more. If I was not at home, he was to wait in the office until I came, no matter how long. He at least would not be tempted there. At eight o'clock he telephoned he was terribly nervous and he felt it was impossible to stand it; at eight-thirty he telephoned he thought he would give up the treatment; it was too "expensive." When it was argued that the visit would cost no more than a "sniff," all he could say was he thought it was too expensive for him. As a matter of fact, he earned thirty dollars a week and spent between thirty and thirty-five dollars each week for heroine.

A friend came with him to the office on that Sunday who had been discharged from the Metropolitan Hospital on the day before as cured of the same habit. He also took all kinds of vows to quit. He had no money, no work, but he made similar vows in my office, and stated how relieved he felt to think that he was rid of the terrible habit. My friend "accommodated" him when he was nervous, that same evening!

TREATMENT.

From what has been said we can readily see how these habitués fall into the hands of a certain type of charlatan. The belladonna and hyoscine methods so much in vogue at present, are intended to overcome the strain of no "dope" by their nerve soothing action. These last two mentioned are not habit forming drugs and in writer's experience are not habit curing, although some of the largest public hospitals prescribe them. The writer has seen many patients leave the hospital and take "dope" within twenty-four hours, sometimes before they got home. Another treatment places the patient in an isolated padded cell and keeps him there until the physician thinks he is cured, giving only such medicines as are indicated. The psychotherapeutical methods as electricity, hypnotism, psychoanalysis, etc., produce a certain percentage of cures.

All of these methods of treatment fail in the fact that they treat a symptom and do not attempt to cure the disease. The writer knows patients who have taken every one of the treatments mentioned and a few more, and are no better off today than when they started. The hysterical type can in a few instances undoubtedly be cured by the powerful suggestions of any well advertised treatment, but the neurasthenic practically never.

The simplest, safest, most convenient and probably the best line of treatment the author uses is to place the patient in bed. Give one compound cathartic pill every hour until twelve are taken. Follow this with a teaspoonful of the saturated solution of magnesium sulphate every half hour until two ounces of the solution is taken. The pulse, temperature, respiration, and blood pressure are carefully charted and other medication is given as indicated. A slightly subnormal temperature, low blood pressure, or a feeble and irregular pulse is not necessarily alarming. For two days the patient is overfed, mainly on milk diet. (Many patients have told the author that large quantities of milk seem to handicap the proper working of every "dope.") Then the whole treatment is repeated. The patient is placed in a darkened and isolated room during the whole course of treatment, somewhat as advocated by S. Weir Mitchell. No reading or unnecessary conversation is permitted; visitors are absolutely forbidden to see the patients; outside of the possibility of drug smuggling their sympathy gives no help. The drug soaked clothes are taken away and if new ones cannot be obtained, the old ones should be thoroughly washed before the patient puts them on again, because small doses, long continued, of any of these drugs are more certain to clutch their victim than large amounts taken for a short period, and the old clothes often have just enough drug in the cloth to do great harm. Tobacco should absolutely be forbidden. Every

man among the author's cases, and at least one woman habituée from alcohol to hashish, have been excessive users of tobacco, and many a man who thought he was entirely cured started with his narcotic again when he went back to his old smoking excesses. Heroin among children is a habit much more prevalent than most people believe, because they purchase only very small doses, but they take these for a long time. Menthol, in the writer's experience, is a precursor of the cocaine habit very frequently.

If these simple rules are followed and the treatment given in a small hospital where the physician is intimately acquainted with the personnel, the final results will be much more encouraging than heretofore, and many a person will be lifted out of the rut and placed once more on a par with his fellows.

Coaltar products and the other synthetic derivatives are said to have a large number of habitués, but no such case has presented itself to the writer for treatment.¹ Finally, the author wishes to cite a case which will tell its own lesson. He was consulted by a woman who was undergoing the discomforts of the menopause. She was very much exhausted from prolonged anxiety, and a pint bottle of one of the best known proprietary reconstitutives was prescribed. Over the telephone she was informed that she might renew her prescription, as it was harmless. About six months later, by accident, this woman was encountered in the street; she said she was feeling fine and was now ordering her medicine by the dozen bottles. This woman is a drunkard and does not know it.

When the patients are finally discharged as cured, it must be impressed upon them that the ideal treatment for any drug habituée is isolation from others and that they must stay away from their old friends and haunts, no matter what inducements to the contrary present themselves.

848 GREENE AVENUE.

DOUBLE MASTOIDITIS WITH SEPTIC SINUS THROMBOSIS.*

By CLARENCE H. SMITH, M.D.,
New York,

Otolgogist, Union Hospital; Surgeon, Bronx Eye and Ear Infirmary,
Instructor, Diseases of the Ear, New York
Post-Graduate Hospital.

A case I had this past summer was so interesting to me from the difficulties which it presented in diagnosis and provoked so much anxiety on account of the severity and length of its course, that I feel justified in taking up a little space in reporting it. Just a few words, first, on the condition of lateral sinus thrombosis. This may spring from two causes, the presence of extradural pus, or from contact of the dura with diseased bone. An infective process involving the inner coat of the lateral sinus nearly always gives rise to the formation of a thrombus. The streptococcus is always the germ responsible. The symptoms of lateral sinus thrombosis are caused by the periodical discharge into the

¹Since this paper was written the writer has come into contact with two aspirin cases. A lady took sixteen tablets (presumably five grains) daily.

*Read before the Bronx Medical Association, December 2, 1914.

general circulation of septic matter from the clot. These symptoms are a sudden rise of temperature to 103° or 105° F. and a flushed face, the patient looking extremely ill. This febrile disturbance is followed in about six hours' time by defervescence and profuse sweating, and it may be preceded by a chill. This cycle of symptoms will reappear in twenty-four or forty-eight hours. After a time, if the condition is not relieved, the patient assumes a distinctly septic look, and may show metastases in various parts of the body.

CASE. Martha W., aged six years, was admitted to the Bronx Eye and Ear Infirmary, May 5, 1914, suffering with double acute purulent otitis media. Bacteriological examination showed the presence of *Streptococcus mucosus capsulatus*. Three days later, I was forced to perform a simple mastoid operation on the right side. On the twelfth day of her stay in the hospital I operated on her left mastoid.

As the temperature kept high, over 103° F., and there were no pulmonary or other symptoms to account for it, I began to suspect the presence of lateral sinus thrombosis, and had Dr. J. Garfield Dwyer make a culture from her blood to ascertain, if possible, if there was a bacteremia. The result of this examination was negative. As the temperature persisted in its septic curve, on the twentieth day, I had another blood culture taken by Doctor Dwyer, and in this he was able to demonstrate a small number of streptococci. This apparently confirmed the tentative diagnosis of septic thrombosis. The problem then presented itself as to which sinus contained the thrombus, if either.

The child was put on the operating table again. I determined to open the right sinus first, as the mastoid on that side had been the worse of the two, and the infection on that side preceded the other. On opening the sinus the hemorrhage did not seem to be as sharp as one would expect from a normal sinus, but there was no evidence of a clot. On passing a probe up and down the lumen of the vessel the flow seemed to become normal. As I was not satisfied that we had discovered the source of the sepsis, I then opened the sinus on the left side, and there got a hemorrhage which was unmistakably free.

It then appeared that if the trouble was in the sinuses, the child had had a parietal clot in the right sinus, which somewhat impeded the flow of blood for a second or two, and that it had been washed away. It did not seem that we were justified in going further, and the sinuses were packed with gauze dressing and the child left the table in good condition. Our troubles were not over, however, as the patient still showed a septic temperature. On the twenty-fourth day of her illness I began the use of leucocyte extract and an autogenous vaccine prepared by Doctor Dwyer. These, together with stimulation, were the basis of my treatment for another ten days, when, the symptoms still persisting, I asked Doctor Dwyer to take another blood culture, this was again negative. I then resumed the vaccine and leucocyte treatment.

As the septic range of temperature continued, however, it seemed as if, in spite of the negative cultures, there must be a thrombus in the neighborhood of the right jugular bulb, and as the condition of the patient at that time was getting desperate, after consultation with Dr. Warren C. McFarland, I determined to resect the right jugular vein on that side in order to shut off from the circulation the products of this septic clot. So, on the forty-third day of her illness, I again put her on the operating table and resected the vein. Her condition from that time improved rapidly, the temperature soon reached normal, and she was able to leave the hospital on the fifty-eighth day of her illness, or on July 2d. Thereafter her recovery was uneventful, and she was discharged from treatment, September 23d, with all her wounds healed.

1060 CAULDWELL AVENUE.

CATHARSIS AFTER OPERATION FOR APPENDICITIS,

*With a Word as to Some Abuses.**

BY LEO B. MEYER, A. M., M. D.,

New York,

Associate Surgeon, Mt. Sinai Hospital; Assistant Visiting Surgeon,
Beth Israel Hospital and Mount Sinai Hospital.

Though it is over twenty-five years since the first modern operation for appendicitis, and fully fifteen since the present supposedly perfected technic, considerable difference of opinion still exists as to the ideal method of handling the patient after operation. To just one item in this aftertreatment, namely, catharsis, I wish to call attention. I can merely outline my views in my limited space.

From twenty-four to forty-eight hours after operation, many surgeons as a matter of routine give a cathartic to relieve distention and get rid of toxin laden intestinal contents. This was the plan I formerly followed, but many years ago I became convinced of its needlessness, and at times danger. To approach the subject intelligently, let us indicate rapidly the usual aftertreatment of an average case of appendicitis with peritonitis, sufficiently severe to require pelvic drainage. The patient is usually put into Fowler's position with either intermittent or continuous proctoclysis. A variable time after operation, or possibly present at the time, distention may occur; there is inability to pass flatus, a feeling of fullness; possibly some vomiting. A stomach wash, the passing of a rectal tube, or a low enema will, in many cases, cause relief; medical men are practically agreed up to this point. Should distention persist, however, the medical attendant becomes extremely anxious. It is this very anxiety which is responsible for the use of remedies intended to relieve, but which in reality make matters worse, for the usual treatment at this time is to give calomel in repeated small doses, followed by some form of cathartic salts. To the propriety of this procedure I cannot subscribe.

The fixed idea seems to be to get the bowels to move. No thought is given as to why they do not move. The cause may be an actual bowel obstruction due to a kink or a drain, to a peritonitis or sepsis, or to operative shock. When due to the latter, the intestinal atony, which is the cause of the distention, is supposed to be due to the loss of tone of the gut resulting from the loss of carbon dioxide by exhalation from the peritoneal surface during exposure (Henderson). If after sepsis or peritonitis, the atony is supposed to be due to the effect of the toxins on the splanchnics, and through them, on the plexuses of Meissner and Auerbach in the wall of the intestines, causing an inhibition of peristalsis with resulting atony.

Ordinarily after a laparotomy the sooner the bowels move the more comfortable the patient, for even if the causes enumerated above are not operative, some distention always exists. It is also conceded that if flatus has not passed in twenty-four hours, especially if the patient is commencing to show some ill effect from the distention, means

*Read (by invitation) before the Alumni Association of Beth Israel Hospital, June, 1914.

should be employed to obtain bowel action, for distention alone may be fatal, possibly because of some reflex action on the nervous system, because of pressure on the diaphragm, resulting in disturbed heart and respiratory action, or because of absorption from toxic material in the intestine.

What should these means be? Should they not be in accordance with the pathological condition present? Is it not self evident that when a real obstruction exists, nothing short of operative means can be effectual, and any other treatment will be wrong and dangerous? It is at times very difficult, nay, often impossible, to decide between a dynamic obstruction demanding operative interference as the only resort, and an adynamic one, in which some other means for relief is usually best. But, at any rate, it is important even where the difficulties of differential diagnosis are great not to employ remedies that are harmful. Cathartics as usually employed certainly may be, and often are, harmful, for active peristalsis certainly is dangerous where actual obstruction exists, and where distention from any of the causes above mentioned is present, cathartics are usually of no avail; in fact, they frequently make matters worse by increasing the amount of bile and intestinal secretions without furnishing the means to propel this increased material along, for no cathartic can make the paralyzed muscles of the intestines contract, any more than one can make a paraplegic walk by whipping him. Where intestinal paralysis is so mild that cathartics might be effectual, the same results, with less danger to an inflamed and infiltrated intestine, can be obtained by an ordinary low soapsuds enema or high (?) medicated enemas of peppermint or oxgall or milk and molasses repeated every three hours. If these do not produce results, cathartics will not, and if they do, cathartics are unnecessary.

A patient operated on for peritonitis, for example, and convalescing satisfactorily for four or five days, suddenly suffers from a toxic condition and dies; no one thinks of attributing the death to the exhibition of a cathartic, and yet I firmly believe that death not seldom should be attributed to just this cause; for even where intestinal paralysis is only partial, the muscular contractions of the intestine are not coordinated, and we get a churning and increased absorption of toxins, instead of coordinated contractions causing a forward movement of intestinal contents.

To accomplish any good in therapeutics, we must have a clear idea as to what we wish to accomplish. In this instance we have an intestine that has lost its tone to a varying degree; the muscles cannot contract effectively. Whether the disturbance is due to a poison in the muscles or to nerve involvement, is not clear. Our object is not to make a muscle in this condition contract, but to use remedies which will remove the poison and restore the nerves to normal function, so that they will transmit normal impulses to the intestinal muscle. For removing the poison, we remove the cause of the infection, institute drainage, use hypodermoclysis and proctoclysis for dilution and as an aid to kidney excretion. To help the muscle tone, various remedies have been recommended, such as pituitrin, atro-

pine, eserine, etc. When by the aid of these various remedies the tone of the intestinal muscle has been sufficiently restored enemas will produce results; before this they will have no effect; cathartics will here be worse than useless. The only reason for using enemas, frequently even when no movement results, is because we cannot determine at exactly what particular moment the intestine will be restored sufficiently to respond.

Cathartics given too soon after operation may cause trouble even in a simple appendicectomy during an interval operation, for cases are on record in which, as a result of active peristalsis stimulated by cathartics, the ligature about the appendix has slipped with disastrous results.

Such an accident is very much less likely (in fact, not probable) if the lower bowel is emptied by an enema, thereby stimulating the upper bowel to move its contents along by a mild physiological peristalsis, which excites less strain on an appendix ligature than an active drug peristalsis.

SUMMARY.

My routine management of the bowels after laparotomy for peritonitis or for uncomplicated appendicitis is as follows:

1. Not to bother the patient for forty-eight hours unless he is uncomfortable or there are evidences of progressing distention.

2. At the end of forty-eight hours, or before if necessary, a low soapsuds enema is given. If effectual, a similar enema is given once in twenty-four or forty-eight hours, according to necessity. If ineffectual, a high oxgall enema is given, to be followed every three or four hours by high enemas containing various medicaments, supposedly helpful in such cases, as peppermint, turpentine, asa-fetida, milk and molasses, etc. The application of hot turpentine stupes during this time is very helpful. If these means prove ineffectual (and this happens very rarely), the question of secondary operation with possibly enterostomy comes up. I have used atropine and eserine with only indifferent success. With the intravenous injection of intestinal hormones, I have no experience, but as some reports from their use are very favorable, they are certainly worthy of consideration. A cathartic by mouth I never use before the fifth and preferably not until the seventh day.

140 WEST SEVENTY-NINTH STREET.

Treatment of Ménière's Disease.—F. Soca, in *Bulletins et mémoires de la société médicale des hôpitaux de Paris*, December 4, 1913, remarks that while quinine sulphate is a powerful remedy which eventually cures in the majority of cases of Ménière's disease, it tends to increase tinnitus and cause a temporary partial deafness. Lumbar puncture, which gives excellent results in cases where quinine had wholly failed, is frequently refused by patients and sometimes has to be repeated several times. Recently the author has been administering injections of thiosinamin; it proved promptly and decidedly useful.

Abstracts and Reviews.

SOME PROBLEMS IN THE PATHOLOGY OF SYPHILIS.*

By PROFESSOR JOHN A. FORDYCE,
Columbia University, New York.

As we now know them, the infectious diseases may be divided into two general classes—those due to the bacteria proper and those arising from the invasion of the tissues by the higher organisms of the protozoal type. It is to the latter class that syphilis belongs, and there are many analogies to be found between the phenomena of infection by *Spironema pallidum* and those resulting from infection with other spirilla, such as those of sleeping sickness, relapsing fever, etc. It has been shown in animals, that during the time that the body harbors one or another of these protozoal organisms, it maintains a state of immunity against reinfection. On the other hand, when it has been completely freed from the parasite, the immunity promptly disappears and it is quite as susceptible to a second infection as it was to the first. Syphilis in man probably presents an exactly analogous condition, immunity to reinfection existing only so long as organisms are still present in the tissues. Immunity to infection is evidence, therefore, that an infection has previously occurred and that the tissues still harbor the organisms.

The laws enunciated by Colles and by Profeta are to be explained upon this basis. The mother of a syphilitic infant is immune to external infection because she is already the host of syphilitic organisms; the child of a syphilitic mother is immune for the same reason. In either case the apparently immune individual may show no symptoms of the disease for long periods of time, the organisms remaining in a latent state in the tissues. It has been shown that after infection with the spirochete, by whatever channel it has occurred, the disease may pass into a latent stage and remain dormant for even forty or fifty years.

At any time during this period of latency fresh lesions of the skin or mucous membranes may develop, but at no time is the individual susceptible to fresh extraneous infection of either skin or mucous membranes. The mechanism of this peculiar type of local immunity of certain tissues is not understood, nor why the skin and mucous membranes should remain susceptible to fresh outbreaks of the parasite harbored by the infected person and at the same time be wholly resistant to extraneous invasion.

It was long held that infection with syphilis could occur only through a squamous celled integument, but both animal experimentation and clinical observation have shown this idea to be incorrect. We now know that infection may take place through direct inoculation of the deeper tissues, and in animals by direct endocardiac injection of the virus. In the cases in which infection thus occurs through inoculation of the deeper tissues, the initial lesion is frequently absent. This would serve to explain

the freedom from symptoms in a woman who gives birth to an infected child. If the organism passes into a state of latency very soon after such an infection, even the secondary symptoms may be wanting.

Following the usual infection through the integument, there is a period of incubation before the symptoms of infection become manifest. There is evidence that during this first incubation period the organisms may be widely disseminated throughout the deeper bodily tissues, mainly, in all probability, by way of the lymph channels. Furthermore, during the first eight days of this period of incubation, the body is not protected against superinfection. But if superinfection does occur, the lesion or lesions which develop from it may not be chancres, but are often of the same type as the lesions of the first infection which develop at the same time.

Owing to the fact that the skin and mucous membranes become wholly resistant to secondary extraneous infection by the *spironema* shortly after the primary infection, we must seek some means of explaining the occurrence of the skin lesions of the secondary stage of syphilis. It has been proved that these lesions contain the organisms, and it is almost certain that they are due primarily to the local presence of the latter. Why should these tissues be at once susceptible to the organism within the host and insusceptible to a similar organism introduced from without? Two theories have been offered in explanation; first, that there is a gradual weakening of the antibodies originally formed against the infecting organism and that when this progresses sufficiently far the remaining organisms multiply and are thrown into the circulation in large numbers to find lodgment in the integumentary tissues. The second theory postulates the development, by the surviving organisms themselves, of a certain degree of immunity toward the antibodies produced against them by the tissues of the host. This latter explanation finds some support in the observations made on animals infected with other forms of protozoa. In such animals the blood is found to be lytic, or otherwise destructive to fresh organisms introduced from without, but is unable similarly to destroy the organisms harbored by the animal from which it was derived.

The tertiary lesions of syphilis, unlike the secondary, occur quite as frequently in the deeper organs as in the more superficial structures, although they are of a somewhat different gross character. Both the different character and the more general distribution of these lesions are explained on the ground of the development by the tissues of an anaphylactic state toward the presence of the organisms. This state of abnormal susceptibility carries with it a greater friability of the tissues, so that their invasion by the parasites is followed by more extensive necrosis and destruction. The precocious development of such a state of anaphylaxis suffices to explain the cases of florid and malignant syphilis more satisfactorily than the assumption that the infecting organism was inherently more virulent than usual. Furthermore, we have evidence that incomplete treatment of syphilis in the earlier stages hastens the development of this anaphylactic stage. Partially treated cases show, in general, an earlier

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, February 13, 1915.

development of tertiary lesions than do wholly untreated cases. It has been said that the introduction of salvarsan and neosalvarsan has materially altered the course of syphilis, and the explanation of this fact rests upon the preceding observations.

As we have already stated, even in the latent stages of syphilis the body continues to harbor the infecting organisms. Among the lesions of this stage of syphilis, two are especially characteristic and frequent, namely, aortitis and meningitis. Both lesions may persist for years without giving evidence of their existence, and in both the organisms have been shown to be present. Other lesions may also contain the organisms during the latent period, among which may be mentioned the scars of chancres. During the first, second, and early part of the third stages of syphilis there is a blood infection with the organisms, but with time the parasites in the blood decrease in numbers, and in the latent stages the blood is for the most part free from them. At any time, however, during the latent period, conditions may arise which lead to the rapid multiplication and liberation into the blood stream of fresh numbers of parasites with an outbreak of local lesions.

Statistics from different sources show that aortitis is a very common development in the course of syphilitic infection, and it is one of the commonest causes of death in infected individuals. Once it has developed, it is exceedingly difficult to cure, as it is associated with an occlusion of the vasa vasorum of the aorta so that the organisms are little accessible to drugs introduced into the blood stream. Much the same may be said of meningitis, the other common lesion in this stage. This is also typically characterized by an obliterating endarteritis.

Infection of the central nervous system probably takes place quite early in the disease, although it may not produce symptoms for many years. Recent painstaking studies have shown that the earliest lesion in this region occurs in the perineural and perivascular lymph spaces along the posterior nerve roots. It is the direct result of extension from the small arteries to the perineural lymph channels which are in direct communication with those of these small vessels. This invasion has also been shown to occur first along those nerve roots which are the most subject to irritation. These supply the tonsils and the internal organs of vital importance. In the cervical region they are the second and third especially: in the dorsal, the first to the fourth, and the lower dorsal: the upper lumbar are involved with the latter group. This posterior root lesion occurs first between the posterior ganglion and the spinal cord, and this is probably the earliest stage in the development of tabes. The lesion slowly progresses inward to involve the meninges and the posterior columns of the cord. In paresis, on the other hand, the lesion is dual, being a simultaneous or successive involvement of the cerebral meninges and the brain tissue itself with the development of an encephalitis. The early involvement of the posterior root region in tabes and spinal syphilis has been thought by McIntosh and Fildes to be in the nature of a local anaphylactic response on the part of the cells in this region, which were sensitized

through their immediate lymphatic connection with the nutrient arteries.¹

In conclusion, it may be stated that regardless of the site of the syphilitic lesion, or of the stage of the disease in which it makes its appearance, it is always typically of the same nature, namely, a lymphocytic perivascular infiltration associated with an obliterating endarteritis.

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLV.—What is your experience with high frequency currents in the treatment of tumors of the bladder? (Closed.)

CLVI.—What is your experience in the treatment of pellagra? (Answers due not later than March 15th.)

CLVII.—How do you treat diarrhea? (Answers due not later than April 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best paper submitted in answer to Question CLIII was awarded to Dr. John I. Fans, of Philadelphia, whose article appeared on page 253.

PRIZE QUESTION NO. CLIII.

THE VALUE OF CONDENSED MILK AS A SUBSTITUTE FOR THE MOTHER'S MILK.

(Continued from page 361.)

Dr. S. W. Newmayer, of Philadelphia, remarks:

There are two kinds of condensed milk: 1. The unsweetened; 2, the sweetened, with large quantities of cane sugar added. The latter, put up in cans, is the kind mostly marketed and used. Infants deprived of breast milk are best fed on modifications of fresh, pure, clean cow's milk. The average baby can be fed on the mixtures or modifications adapted for a baby of its age and weight. However, occasionally one finds a baby which cannot tolerate, digest, or thrive on any milk formula. Here it is a case of not what it ought to take, but what it can take. In some of these cases, where an intelligent and fair test of modified cow's milk has proved unsuccessful, condensed milk is a good temporary food, or starter. This is due to its containing almost no protein or fat requiring digestion, while the carbohydrate is sufficient to meet requirements for heat and muscular power and possibly admit of some being converted into surplus fat.

¹At this point many interesting slides and photographs of lesions were shown upon the screen to bear out the author's contention with regard to the essential similarity of all of the lesions of syphilis.

Condensed milk, lacking in protein and fat, fails to build tissue cells, but furnishes heat and energy and possibly stores fat. The baby fed exclusively on condensed milk may become a victim of diarrhea, scurvy, or marasmus. Where condensed milk has agreed with a baby after numerous trials with milk formulas, it is difficult to persuade the mother later to make a change to the needed milk formula. She becomes deluded by the baby's gaining weight and fat. It is well to place the child on a dilution of one part of condensed milk to twenty-four parts of boiled water, and gradually increase to one in twelve of water. When the child seems safe, add a small quantity of cream, and finally substitute the milk modification for the condensed milk.

As an emergency food, gradually to be replaced with one which contains the necessary elements in proper proportion for nourishment and growth, condensed milk has proved a valuable adjunct in infant dietetics.

Another use of condensed milk is when it is impossible to obtain a safe, pure, fresh cow's milk, for example, while traveling.

Dr. Edward Lewis Blake, of Brooklyn, New York, writes:

Condensed milk is one of the older means of nourishing a child that, for some reason or other, cannot take the mother's breast. My experience so far in private practice, is that condensed milk is one of the best substitutes for mother's milk, provided that it is used intelligently, as I believe there is no one food for all artificially fed babies. The first four or five months of an infant's life is the time that we have to put forth our best endeavor to sustain its strength, and if we can find some food that will fulfill the requirements, we get the thanks of parents and considerable satisfaction for ourselves. Condensed milk is one food that will not be wholly disappointing. I speak of using condensed milk where the more suitable preparation of modified cow's milk has failed, and it is a well known fact that there are many infants that cannot thrive upon modified cow's milk. Why, we cannot tell, as it seems the most logical means of feeding.

I have seen children after having been fed on modified cow's milk for two or more months, that not only had not gained, but had lost in weight and strength. Condensed milk would be given to these children after modifying the directions as given on the container, and a gain of from one half to one pound would result the first week. Then, again, there are children who seemingly thrive on modified cow's milk, but continually vomit and have green slimy stools. After the use of condensed milk, the vomiting ceased, stools became more normal in color, and absence of colic was particularly noted.

Arguments against condensed milk are that it makes fat for the child, owing to the sugar contained, but that the lime salts for bone making are absent or present only in small quantities. Theoretically, this may be true; practically, it is not. When the child is watched and when it reaches the age of six or seven months, then start with modified cow's milk which corresponds to a mixed diet. At this time the child's stomach and intestines are

stronger and more tolerant to food. As regards dentition, I have failed to see where it has been retarded, because the condensed milk babies cut their teeth just as soon as, if not sooner than babies otherwise fed.

To cite one case, Baby W., seven and a half pounds, born in April, 1914, was at a disadvantage because of much loss of blood, owing to the cord breaking when the head was delivered, as cord was around the neck in three tight loops. The mother could not nurse the child because of lack of milk. Modified cow's milk, raw and pasteurized, was used for two months, various formulæ being tried without success. This was discontinued, and other preparations were used because of the mother's prejudice against condensed milk. No results were shown by the scales. When in September, 1914, the child had gained only one pound, the mother having given up hopes of the child's life, condensed milk was tried, with the result that at present, December, 1914, the child weighs seventeen pounds, has two teeth, uses limbs well, and in every way seems to be a normal child.

It might be well before closing to mention that during the summer months, condensed milk feeding seems more advisable because of the use of boiling water for dilution, which results in a preparation almost free from bacteria; also the ease with which it is prepared makes the mother more likely to carry out directions than with complicated formulæ not understood by the laity. In conclusion, I wish to say that I have tried to be conservative in my estimation of the food value of condensed milk. I have obtained good results with other forms of feeding, but believe that in condensed milk we have one of the best substitutes for mother's milk.

Dr. M. Block, of New York, states:

Condensed milk is not an infant food that can be a permanent substitute for mother's milk. As a temporary food, in a selected class of babies, with definite indications for its use, and properly administered, it has no equal and its place cannot be taken by any other food. In my experience it is the puny infant, in the first four months of its life, that does best on properly diluted condensed milk, where breast feeding has to be dispensed with either partly or entirely.

The imperfectly developed baby is usually born with a gastrointestinal apparatus of feeble digestive power, and when artificial feeding has to be resorted to, either on account of the poor physical conditions of the mother or for other causes, it is frequently unable to digest and assimilate even properly prepared cow's milk. When feeding such babies with modified bottled milk is persisted in, they will not thrive, but will go from bad to worse and finally drift into a condition of hopeless marasmus. It is in such cases that condensed milk appears to be a regular life saver. I have seen such babies, when the process of malnutrition has not gone too far, begin to thrive from the first day of the administration of condensed milk. There is a steady gain in weight, more restful sleep, a contented and cheerful demeanor on the part of the baby, and an increased activity of all the physiological functions

of the body. I always bear in mind that I am dealing with a temporary food, that condensed milk acts only as the preparatory agent for the real substitute for breast feeding, which is, scientifically modified bottled milk of good quality.

I consider two months about the longest time to permit a baby to feed on condensed milk exclusively. Usually about the fifth or sixth week, I begin to eliminate one condensed milk feeding and substitute a modified milk feeding. From week to week I gradually increase the number of modified milk feedings and decrease the condensed milk feedings, until at the end of three or four months, I have done away with condensed milk entirely. When the change in the baby's diet is accomplished in this slow manner, no gastrointestinal disturbances will follow and the baby will be in a thriving condition. A too prolonged course of condensed milk will expose the baby to the dangers of rickets and anemia. The large flabby babies of little resisting power that have been fed on condensed milk exclusively for prolonged periods, are well known to the profession. There are cases where the condensed milk feeding has to be kept up partly or entirely for a much longer period, but they are exceptional.

My preference has been for the sweetened condensed milk, although by the addition of a proper amount of sugar the unsweetened will do just as well. The usual directions found on the cans of condensed milk are defective. They do not call for sufficient dilution. I have been most successful by starting a baby of six weeks or two months on a dilution of one teaspoonful of condensed milk to from three and a half to four ounces of boiled water for one feeding, and increasing it slowly according to the indications of the case.

This is either alternated every two and a half hours with a breast feeding, or if no breast feeding is possible, about seven condensed milk feedings are allowed in twenty-four hours. I use either barley or oatmeal or boiled water as a diluent, according to indications.

In conclusion, I will but mention condensed milk as an emergency infant food during travel or temporary illness of the mother.

Dr. Jin Fuey Moy, of Pittsburgh, believes that:

Condensed milk will never be able to take the place of a mother's milk, or act as a substitute for the purpose of feeding infants during their infancy, until a different process has been perfected for condensing and preserving it. 1. The condensed milk loses the fatty ingredients that essentially compose the wholesome fresh milk from the cow, by the process of condensation, and cannot replace the mother's milk fresh from her breasts. 2. The milk once placed in a closed or open tin can, or anything that is plated with tin or lead, for any length of time, coming in contact with the tin or lead, corrodes more or less: thus it will combine the milk with the tin, which leads to lead poisoning and wind colic, whether the milk is consumed by adults or infants.

The milk once condensed into a soft mass, loses the fatty ingredients and curd in the milk, whether the milk is sweetened for preservation or otherwise.

In other words, the virtue and nutriment in the milk are lost when evaporation or condensation is affected by heat.

The writer had a decade's experience in fresh milk direct from the cow placed in tin pans over night for the coagulation of cream. The tin of the pans corrodes and mixes in with the milk. It is more so when the milk is placed into a can sealed up for an indefinite time. Consequently, condensed milk is not a good substitute for mother's milk.

During the past twenty-five years, the writer has observed infants from one month to two years of age, fed with condensed milk. They had a pale and puny appearance. They were not, by any means, healthy in any sense of the word. This is due to the deprivation of the fatty ingredients and the healthy curd in the condensed milk; and the infants fed with it do not have the substantial ingredients in the milk as found in the fresh milk direct from the mother, or from the cow; even cow's fresh milk diluted with water for the purpose of feeding infants is superior to condensed milk.

It is most troublesome for a physician to diagnose the ailment of a toothless infant that has been fed with condensed milk, without first learning the previous feeding, whether a colic is due to lead poison or to other causes. He is often, especially if newly graduated, led astray on account of no physical signs or no line of demarcation on the teeth from lead poisoning, only screams and clenched fists caused by the colicky pains of the infant. The screams seem to indicate colic from lead poisoning, until the question of its feeding has been brought to light.

The writer knew a printer who worked in Philadelphia, had his family in Conshohocken, Pa., and fed his infant boy on condensed milk, soon after his birth. The pains from the lead poison in the condensed milk caused this infant to scream in the night, kept the whole family awake, and deceived the physicians in that town. If some infants of the present day should have such symptoms as that infant had in those days, they would be quickly removed to a hospital, and be operated upon for appendicitis, without any indication as to the cause required for such an operation whatever! After seeing the infant, the writer advised the parents to feed him with oatmeal or rice gruel. In two months, he gained twenty-one pounds, and, on account of his previous condition, his appearance then attracted the attention of all those who knew him!

Another case the writer saw when he was in New York. A neighbor had an infant boy about seven months of age that had been fed upon condensed milk, owing to the deficiency of his mother's milk. This boy was very fretful at all times. He was not able to sleep, and he did not let his father or mother indulge in the same. The writer was called in for his treatment, and made careful observations of his behavior. After careful observation and examination of the infant, the writer advised his parents of the lead poison from the condensed milk. The parents did not believe it, upon the ground that they themselves used condensed milk in their coffee, and suffered no ill effects from it, except constipation and wind colic. One day the mother turned her in-

fant boy over to the writer's wife, who made oatmeal gruel for him in place of condensed milk for the day. After oatmeal gruel was put into his nursing bottle, he nursed from it with great joy and nourishment. He slept all the day long without a murmur. Upon the return of his mother, who inquired about his behavior during the day, when she was informed that he did not cry at all, she was sure that he was going to die. Instead of death, he grew fatter and fatter every day upon this kind of feeding, and never roused his neighbors from their slumber as he did in former months.

Not condensed milk in cans alone in the combination of milk with tin will cause nerve disturbances and intestinal colic, but in fact, all canned goods will act in the same manner, be whatever they may. Take, for instance, the canned crabs from Japan, the canned lobster and salmon. Who can tell how long that the crab, lobster, or salmon has been in the can? There is no mark or sign by which an indication can be had of the length of time the crab, lobster, or salmon has been in the can! Will not the unscrupulous tradesman take advantage of his customer through mercenary motives?

Dr. Charles A. Sparrow, of Worcester, Mass., writes:

If we keep absolutely before us the three cardinal principles of infant feeding: 1. Breast or mother's milk is the best food for an infant and should always be given if possible; 2, cow's milk cannot be converted into mother's milk; 3, there is no single method of substitute feeding adapted to all cases; in fact, each case of infant feeding is a study and often a puzzle by itself—we shall find that condensed milk can be used to great advantage in certain selected cases.

Condensed milk is prepared by heating fresh cow's milk to 212° F. to destroy the bacteria, and then evaporating it at a low temperature in vacuum pans to a little less than one quarter its volume. It may be sold in this condition as fresh condensed milk. Such milk is delivered daily in New York and other large cities and has not the disadvantage of a large amount of cane sugar—containing about twelve per cent. For the poor in large cities it is sometimes the best infant food available, although the milk station work has done much to place before the poor the opportunity of getting good cow's milk.

However, ordinarily granulated sugar—six ounces to the pound—is added and the milk put up in small cans hermetically sealed—such as we are all familiar with. By this process of partial evaporation, sterilization, and addition of sugar, we get a milk containing about seven per cent. fat, 8.5 per cent. protein, and a sugar percentage with enormous variation, conservatively estimated at fifty per cent. For use this is diluted with six, twelve, or eighteen parts of water, the twelve part dilution giving about 0.5 per cent. fat, 0.65 per cent. protein, and seven per cent. sugar, which can be compared with good breast milk, containing 3.4 per cent. fat, 1.5 per cent. protein, and seven per cent. sugar.

The three main reasons why infants are fed upon condensed milk are: 1. Readiness with which it can be obtained; 2, great cheapness; 3, ease with which feeding mixtures can be made up. The reasons for

the success and for the failure of condensed milk as a substitute food for mother's milk are easily apparent from a study of its composition as ordinarily used. It fails as a permanent food, partly because it consists too largely of carbohydrates, but chiefly because it is lacking in fat and protein, the blood and muscle forming part of infant food.

Indiscriminate, prolonged use of condensed milk is bound to produce rickets, and infants reared exclusively upon it rarely fail to show more or less evidence of this disease upon careful examination. The worst cases of rickets in my practice are in condensed milk babies. Children so fed are predisposed to the infectious disorders. They have less resistance and far less vitality, especially in combating such diseases as pneumonia or diphtheria; they have tendencies to hernias and deformities owing to the softer condition of their muscles and bones; they invariably suffer from constipation; their dentition is delayed, which conditions are brought about by the lack of bone building and muscle forming ingredients.

I find condensed milk a very useful substitute for mother's milk in a certain few cases, but only as a temporary food for a few days or a week or so: 1. In infants with very weak digestions, either from inability to digest fats normally (the babies who require low fat formulæ) or inability to digest the protein; they often get a proper start and find the first food that does not upset them in a condensed milk feeding. This is partly because the milk has been sterilized, but mainly because the fat percentage is very low and the casein of the cow's milk has been reduced to such a point—about 0.6 per cent.—that an infant with very weak digestion can manage it, while it furnishes an abundance of sugar, the easiest thing for an infant to digest. During the first few months of an infant's life, it is often apparently very successful for these reasons, but cannot be continued indefinitely without hazard. Using the condensed milk formula as the starting point, it can be modified by the addition of cream or milk in such a way as gradually to work the child up toward the normal percentages of whole milk.

2. In traveling, when good fresh cow's milk cannot be obtained, as on an ocean steamer, I permit the use of condensed milk because it is the most convenient and safest food. However, I simply use it as a means for carrying the infant over until the proper food is obtainable.

3. Condensed milk is admissible only for temporary use during attacks of indigestion, for the young growing infants during the first two or three months of their life.

4. In these days there are certain cases (though they are rare) in which it may be necessary to use condensed milk for a long period, because the cow's milk is either unattainable or of such poor quality that it is even more objectionable than condensed milk. In such a case it is necessary to add fresh cream when possible; otherwise, codliver oil, fifteen to twenty drops to a feeding.

It will be readily seen that condensed milk is of certain value as a substitute for mother's milk in a few selected cases, but it *should never* be continued as a permanent food when good fresh cow's milk is obtainable.

Dr. Clement A. Penrose, of Baltimore, remarks:

Condensed milk can be obtained sweetened and unsweetened. The latter is frequently put up in large cans for transatlantic use, etc. The unsweetened are more fluid and not used as much as the sweetened varieties in the feeding of infants. The chief brands of condensed milk on the market are made from good average milk. This is first given a high pasteurization, 85° C. for about fifteen minutes. It is then sweetened with cane sugar (in the sweetened variety), which, after evaporation of the milk to one third or one fourth its original bulk, equals about forty per cent. This evaporation takes place in copper pans heated to about 52° C., by hot water running through copper coils. When after some hours the specific gravity desired is reached, in the unsweetened variety, a superheating at 85° C. is again given for a few minutes. The milk is then drawn off into ten gallon cans, equipped with stirring paddles, where it is thoroughly mixed and given a proper consistence. It is then transferred to a large hopper and run from this into the small cans used in the market. The cans are sealed with solder and put aside for two weeks. All which show a bulging (i. e. fermentation) during this time are put aside, again pasteurized, and sold as a cheaper product.

Condensed milk is not a suitable substitute for mother's milk. Occasionally one hears of an infant that thrives on it. This, I believe, is due to the extreme dilution used, giving a low protein formula, which may suit for a time only.

Doctor Holt says that certain rather exceptional cases will do better if a duplicate formula of modified milk is used. The best clinicians are unanimous that the long continued use of condensed milk may produce rickets. Sterilized milk alone will not. Milk sugar is Nature's own selection. Why use another less digestible, and dangerous in excess? The purpose is not to sweeten milk, perverting the infant's taste, but to furnish enough soluble carbohydrate food. When condensed milk is diluted to lower the sugar content, the protein and fats are also greatly reduced. The fats can be increased by adding cream. As children on a low protein diet lose weight and appear hungry, the fats are often added in excess.

Excess of fats is more serious than excess of protein. Infants may at first thrive, but later lose weight and appetite. They are often constipated, with gray, hard stools, chiefly fatty soaps, depriving the body of alkaline bases, a condition like acidosis. High pasteurization is also detrimental. A low (60° to 65° C.) will kill most non-spore bearing organisms harmful to man. Lactic acid bacteria survive this temperature and inhibit the growth of harmful bacteria; 80° to 85° C. will kill these bacteria, but not resistant forms, which may set up an alkaline fermentation (often quite toxic). Mother's milk and cow's milk contain a number of important enzymes, which survive low, but are killed by high pasteurization. Milk is slightly germicidal. This power lasts from six to twenty-four hours, is increased in warm, but diminished in cold milk. Market milk exhibits little of this power, which is practically confined to mother's milk.

These facts would destroy my confidence in condensed milk as a substitute for mother's milk. The modification of a certified cow's milk, pasteurized at a low temperature in hot weather, is much better in my experience. Condensed milk should be used only in the emergencies of travel, etc., or where good milk is not obtainable.

Therapeutic Notes.

Treatment of Gas Bacillus Infection.—E. Delorme, in *Presse médicale* for October 22, 1914, expresses the view that too much stress is commonly laid on free incisions or amputation as the measures indicated in dealing with gas bacillus infection; success may be had with other, simpler means. The treatment strongly advised by Delorme consists of injections of hydrogen dioxide solution. A circular barrier to the extension of the gas organism should be established by introducing successive amounts of the undiluted solution subcutaneously in a ring above the tense, brown, emphysematous tissues already infected. The space between injections should be about one to 1.5 cm., and after the first ring, a second circle of injections should be made a few cm. above, the individual points of injection in the second circle alternating with those in the first. Where the thigh is being dealt with, thirty to sixty injections may thus be made. Additional series of injections may be made above or below the initial circles on the next day or the same day, if necessary. The aim should be kept in mind to reclaim permanently by means of the solution tissues from which the gaseous process has receded. In hospitals, injections of oxygen gas, replacing the septic by an antiseptic emphysema of the tissues, may be substituted for the hydrogen dioxide, but the greater simplicity and availability of the latter commends it for general use.

Where tension of the tissues over the infected area is excessive, the injection treatment is not in itself sufficient, as vascular compression results from the excessive pressure, with supervation of pressure gangrene in addition to the septic gangrene already existing. To overcome this difficulty, the fasciæ covering the muscles must be split upon, as they constitute an essential factor in the rise of pressure, forming an unyielding wall over the gases within. Thus in the leg the fasciæ covering the anterior and the posterior groups of muscles should each be split over a distance of ten or more cm., and the superficial muscles separated from the deep. This procedure must be carried out early, as irretrievable damage quickly follows the progress of the bacterial process, if unopposed. The large openings made into the fascial compartments should be used for free irrigations with hydrogen dioxide solution. One of the openings should by all means be made along the course of the large vessels of the part nearly to the margin of the gangrenous area, in order to cut off any septic infiltration which might follow in the cellular tissue and lymphatics accompanying these vessels. Early disinfection of all deep wounds with hydrogen dioxide is urged as the chief prophylactic factor in relation to gas bacillus infection.

Treatment of Conditions Associated with Heightened Coagulability of the Blood.—A. F. Plique, in *Bulletin médical* for May 6, 1914, accounts for the thrombosis sometimes following repeated hemoptyses or cancers or fibromyomas of the uterus where frequent, copious hemorrhages have taken place. After operation in cases with small, easily enucleated, but copiously bleeding uterine fibroids, phlebitis not seldom appears without any accompanying evidence of tissue infection. In pregnancy, the excessive blood coagulability which appears in the eighth month, increases until labor, and persists for three weeks or even three months after delivery, and accounts for the peritertiary, placental, and vulvar thromboses, the condition of milk leg which sometimes appears in women who have shown the least evidence of fever. Such thrombotic processes are no less grave than infectious phlebitis, and the author deems it of considerable importance that measures calculated to lower the blood coagulability to normal be applied in the classes of cases referred to.

Citric acid in daily doses of three and even six drams (twelve to twenty-four grams) has been proved valuable as a preventive of thrombosis by Chantemesse. Blood containing but 0.1 per cent. of this acid is incoagulable. Plique prefers, however, to use sodium citrate, which is less acid in taste, less—or not at all—irritating to the stomach. It is well borne even in doses of five drams (twenty grams) daily, and its prolonged use has never been noticed to bring on the hemorrhagic tendency observed by Pouchet in the case of large doses of lemon juice. It may be used alone or in admixture with sodium bicarbonate:

R Sodii citratis,āā ʒi (30 grams).
Sodii bicarbonatis,āā ʒi (30 grams).

M. Sig.: One teaspoonful in a glass of sweetened water or some hot infusion after meals.

Where phlebitis has already supervened, the citrate should none the less be given, to prevent subsequent embolism, due to loosening of the soft, secondary clots. According to Chantemesse, citric acid in daily doses of three drams (twelve grams) should be given on the first three days of phlebitis; after this sodium or magnesium citrate in doses of one half to one and one half dram (two to six grams) should be administered in solution. As soon as a laxative (not purgative) effect has resulted from the taking of small doses of the citrate at short intervals, the drug should be stopped. A useful effect on the bowels is thus combined with the action on the blood, and a reliable limit set in the administration of the drug.

Locally, the following ointment may be applied in phlebitis:

R Hydrargyri iodidi flavi,gr. xv (1 gram);
Potassii iodidi,gr. xlv (3 grams);
Adipis benzoinati,ʒi (30 grams).
M. et fu. unguentum.

Sig.: To be applied with a camel's hair brush, after softening of the ointment on a water bath, to the painful area.

In cases with severe pain three grains (0.2 gram) of cocaine or morphine hydrochloride may be included in the foregoing ointment, and in varicose cases, forty-five grains (three grams) of fluidextract of hamamelis. The value of the mercury and iodide

in phlebitis is shown by the fact that if the ointment is employed from the start, when the first local pains appear, the phlebitis is often arrested at the pre-obliteration stage. Pain, slight redness, and edema along the course of the vein are then the only manifestations of the condition. Such a favorable effect is obtained especially in rheumatic phlebitis and in cases where there is but little fever.

Treatment of Urticaria.—Allan Eustis, in the *New Orleans Medical and Surgical Journal* for April, 1914, reports experiments to show that betaimidazolethylamin, a substance formed when histidin, one of the aminoacids arising through the normal pancreatic digestion of proteins in the intestinal tract, undergoes putrefaction therein, is responsible for the characteristic urticarial eruption. According to this idea, a rational treatment could be outlined upon dietetic principles, and indeed, Salomon has reported striking results in rebellious urticaria from having patients abstain from all protein food for two weeks. The diet allowed by Salomon during this period consisted only of tea, coffee, bouillon, lemon and grape juice, potatoes, rice, cereals, and plenty of butter and sugar, with 200 grams of bread made from coarse flour. All these articles are low in protein, and the proteins contained do not yield histidin on digestion. After the period of diet restriction, urticaria did not return, in Salomon's experience, although the patients gradually resumed milk, eggs, cheese, and meats, the protein ration being still kept, however, rather below the usual amount.

Eustis points out the necessity, in addition to the dietetic treatment, of overcoming any tendency to intestinal stasis in urticaria. The following combination has yielded uniformly good results in his hands, with none of the usual disagreeable effects of calomel:

R Phenolphthalein,āā gr. vi (0.4 gram);
Powdered rhubarb,āā gr. vi (0.4 gram);
Calomel,gr. iii (0.2 gram).

M. et pone in capsulas No. iii.

Sig.: One every half hour at night.

In several hundred cases in which the foregoing preparation was used, the average time elapsing before the first stool was eight hours—after the last dose,—and there was little or no nausea, and no colic. As a rule it is not necessary to follow with a saline. Subsequent daily evacuations of the bowel should be secured; this can best be accomplished by administration of liquid petrolatum in two or three ounce (60 or 90 c. c.) doses, fig paste containing chopped up senna leaves, or agaragar taken in oatmeal in the morning. By adding beets, celery, spinach, and other articles of diet containing much cellulose, to the diet outlined by Salomon, and instructing patients to observe regularity in emptying the bowels and take a glass of water upon rising in the morning, Eustis has found it remarkably easy to relieve urticaria, through elimination of the enterogenous toxemia. The degree of the latter can be readily estimated by frequent examinations of the urine for indican, and whenever the latter is present in more than a trace, protein food should be cut from the diet. A virulent culture of *Bacillus bulgaricus* has also yielded good results in the author's hands.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal
and The Medical News.*A Weekly Review of Medicine*

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Address all communications to
A. R. ELLIOTT PUBLISHING COMPANY,
Publishers.

66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transpor-
tion through the mail as second class matter.

Cable Address: Medjour, New York.

NEW YORK, SATURDAY, FEBRUARY 27, 1915.

FEDERAL REGISTRATION IS INDISPENSA-
BLE TO THE PRACTICE OF MEDICINE.

What is known as the Harrison antinarcotic act, which was passed in December by the Congress of the United States, goes into effect March 1st. This act, while really intended to govern the interstate traffic in opium, coca, and their derivatives, is ostensibly a revenue act, for it was only by exercising its taxing power that it became possible for the United States Government to demand the registration of every individual who imports, manufactures, deals in, dispenses, or gives away opium, coca, or their derivatives.

No druggist is henceforward permitted to dispense the drugs indicated unless the prescription bears the registry number assigned to the prescriber by the United States Collector of Internal Revenue, the name and address of the patient, and the full name and address of the prescriber. Most physicians are accustomed to put the name of the patient and their own name and address on the prescription; in addition, they must now put the address of the patient and their own registry number. The number it will be best to have printed on all prescription blanks, as the practice of medicine becomes obviously impossible unless the physician is registered and numbered under the Harrison act. The druggist is not permitted to fill verbal or telephoned prescriptions for these drugs; nor to sell them, even

to physicians, on a mere prescription. He may sell them only on an order written on an official blank form, to be obtained only from a collector of internal revenue. The mere possession of these drugs by persons who are neither registered, nor employed by registered persons, is illegal.

Every person having any of these drugs in his possession on March 1st is required to make an inventory of the quantities and kinds, swear to this inventory before March 5th, and retain it subject to inspection by the authorities when called for. An abstract of the law as it affects physicians, dentists, and veterinarians is given in our news items, and we shall be glad to supply the full text of the law and regulations to any subscriber who applies for it.

As the punishment for failure to comply with this law is a fine, which may amount to \$2,000, or imprisonment for possibly five years, or both, we feel justified in again referring to the subject and urging our readers to comply without delay with the requirements of the law.

THE GENERAL SYMPTOMATOLOGY OF
THE PLURIGLANDULAR SYNDROMES.

Among their multiple actions, the vascular sanguineous glands have one which cannot be denied, namely, the action on the general development of the individual. The thyroid, testicle, ovary, hypophysis, and adrenals govern the development and transformation of the human organism; consequently, the symptoms resulting from their lesions are quite different, depending on whether they occur in the child or adult, in an organism undergoing development or in one that is in full possession of all its functions.

The effects of castration in the male at various ages are too well known to require mention, and the same changes are noted after castration in the female. When done early, there is atrophy of the vulva and uterus, and the secondary sexual characters do not develop; performed at puberty, castration brings about only an attenuation of the sexual character, but there is atrophy of the uterus and breasts. Then, again, it has been conclusively shown that those lesions which produce acromegaly in the adult, determine gigantism when they arise in childhood. What is true of one gland in particular, remains true when the entire system is considered, and although some patients may seem at first sight quite different, the intermediary types permit one to place them in the great class of pluriglandular insufficiency.

Among the various clinical types, there is an entire class of most interesting patients who, by definition, enter into this subject; in those who, giving evidence of a well defined affection, such as

myxedema, exophthalmic goitre, Addison's disease, neoplasm of the hypophysis, etc., present symptoms that should be referred to concomitant lesions of other vascular sanguineous glands.

Then there are those poorly defined cases, difficult to recognize, such as the myxedematous patient without myxedema, the most interesting and typical among them being those who, having undergone development and enjoyed normal activity up to a certain moment of their existence, suffer a progressive development of dysfunctional symptoms, without predominance of any particular one, until the syndrome is fully evolved. The syndrome, it must be said, is never definitively formed, because it continues its evolution, only to end in a very special type of cachexia.

No matter what may be the clinical type with which one is dealing, one of two conditions is present. Either the syndrome forms the essential affection, its evolution is torpid and outside the sphere of the organs involved, and the activity of the individual may remain nearly normal; or the syndrome is added to some previously existing pathological state and this preexisting affection, syphilis or tuberculosis, may be the causative factor. In cases in which all ductless glands are involved, a special character is imparted to the evolution of the primary affection, and here a serious prognosis is inevitable, for it is in these cases that a fatal evolution is most likely to occur.

SOLDIERS AND ALCOHOL.

Men are apparently divided into two factions on the question of the value and harmfulness of alcohol, and most discussions of this important topic are marked more by heat than common sense. Recently, Secretary Daniels's order banishing alcohol from our navy has brought forth a torrent of hostile criticism, on the ground, chiefly, that it is treating the men as if they were children. It must be admitted, however, if one contemplates the subject without prejudice, that something may be said in favor of the order. Since the outbreak of the great European war, two of the nations involved have seen the dangers of alcohol and have made efforts to prevent its use by the troops. Now Sir Victor Horsley comes forth in the *British Medical Journal* for January 30, 1915, with some interesting facts concerning the effects of what he calls the "rum ration" upon the soldiers of England.

He says that the following physiological effects have been observed by both military and naval officers to follow the use of alcohol in quantities up to two and a half ounces of rum daily:

Decadence of morale; causation of friction and disorder; drunkenness; punishment; degradations in rank; decadence

of observation and judgment; causation of errors and accidents; loss of endurance and diminution of physical vigor; causation of fatigue, falling out, and slackness; loss of resistance to cold; causation of chilliness, misery, and frostbite; loss of resistance to disease, particularly that occurring under conditions of wet and cold, namely, pneumonia, dysentery, and typhoid fever; loss of efficiency in shooting. Half the rum ration causes a loss of forty to fifty per cent. in rifle shooting. The navy rum ration causes a loss of thirty per cent. in gunnery shooting.

Certainly these would seem enough to condemn the use of liquor, but it appears that the British authorities in charge of the army and navy have gone back to the provision of alcohol as a portion of the fighters' rations, although the medical authorities are almost unanimously opposed to it. Horsley shows that the use of alcohol as a stimulant is based upon the most flimsy foundation of old tradition and has practically no support from the side of scientific observation.

Whether we consider the question of the desirability of permitting the use of alcohol among soldiers, or whether we look at the problem of the use of alcohol by the ordinary man engaged in business pursuits, these observations recorded by Horsley furnish much food for thought. By way of further comment on the alcohol problem, it might be recalled that most of our modern American industries in which men are employed about machinery have seen the dangers and disadvantages of the use of alcohol, quite apart from the question of drunkenness and immorality which are engendered by its use. With physiological and pharmacological experiments to show us that alcohol is almost a pure depressant to both the central nervous system and to musculature, and with the observations of practical business men whose sole eye is for efficiency, we are apparently forced to the conclusion that the less alcohol used, the better for mankind. While we do not believe in prohibition as either wise or effective, we believe that increasing enlightenment on this question will some day lead to a greatly restricted use of alcohol. Meanwhile, as a personal rule, how would the suggestion of Starke answer, viz., never to touch alcohol until after the evening meal, when the day's work is over? It is then least harmful; and many a drinker has come to deplore the potations of the second day.

SENSIBLE EUGENICS.

It is not to be denied that gross misconceptions of eugenics have arisen largely because it has become a fad, thereby enlisting the support of what Mr. Roosevelt termed the "fool reformer," who in his zeal overshoots the mark, and in his rabid enthusiasm injures the very cause he so ardently desires to advance. In the *Atlantic Monthly* for February, 1915, S. J. Holmes ably defends the position of eugenics against the attacks of its critics,

who evidently have mistaken the ultraradical recommendations of pseudoscientific reformers for the real principles of eugenics as set forth by authentic exponents of the science.

By the intelligent breeding of animals and plants, man has produced results highly specialized in one trait to the detriment of others equally important to the animal or plant were it in its original wild and free state. Therefore it is assumed that man under the guidance of eugenists would achieve the same results in his own case, forgetting that plants and animals are bred for the selfish benefit of man alone, whereas the improvement of the human race must benefit the individual as well as the race, and demands a well rounded product of the advance in evolution.

The eugenist is accused of knowing nothing about love, and of desiring to banish it from consideration in human mating. Holmes could find nothing, however, in the publications of the Galton laboratory in London, or in the bulletins of the Eugenics Record Office in this country, or in the files of the chief German journal of racial biology (*Archiv für Rassen- und Gesellschafts-Biologie*), nor in the English *Eugenics Review*, to justify such views of the science of eugenics. Eugenics in itself is so opposed to prevailing customs that it is peculiarly provocative of opposition from the laity. Therefore, realizing that all growth of sentiment in its favor must be most gradual, scientific eugenists are highly conservative in their proposed measures: they know that there is still much to be learned about the subject. No student of genetics, however, doubts that one familiar with its principles could do much to improve the inheritance of the human race, even with the limited knowledge that we have at present. None will deny that we need more offspring from the families that produce thinkers and successful men of action, and less from such degenerate families as the Jukes, etc., who will fill our asylums, almshouses, and jails.

It is a well known fact that during the past fifty years, the birth rate among families of desirable stock has declined to a point below that necessary to keep up their present numbers. This is true in most civilized countries. On the other hand, the birthrate among undesirables is unduly high. Eugenists desire an opposite state of affairs, and wish to arouse those capable of transmitting good hereditary impulses to a sense of their duty to humanity. We must all agree that this can best be done by means of enlightening the public, and impressing on it the necessity for preserving the flower of the race; for education of the public in these fundamentals will accomplish more at the present time than half baked legislation.

BRITISH INFANTS AT HOME AND ABROAD.

A trustworthy index of the social and economic conditions surrounding a given group of human beings is afforded by the weight of babies at birth. T. Brailsford Robertson, in the *University of California Publications in Physiology*, iv, 20, compares the weights of infants of British descent born in England, the New England States, and Australia, respectively. In London and Edinburgh the male infant weighs from 113.6 to 116.8 ounces, the female from 113.2 to 113.5 ounces. In the Eastern United States the British males weigh 120.8, the females 115.7 ounces. In Adelaide, South Australia, the boys run up to 127.3, the girls to 121.2 ounces. Among the factors in this increase in weight in Australia are offered the less rigorous climate, the cheapness of food, the lack of necessity on the part of the women to do other than domestic work; and it is deduced that the United States stands in an intermediate position between England and Australia as to social and economic conditions.

PHTHIRIASIS IN WARTIME.

Among the most annoying phenomena of life on the battlefield is the apparently inevitable presence of pediculi—the "graybacks" of the civil war—from which no amount of bathing seems to save the fastidious officer or gentleman ranker. Jousseau is cited in a letter to the *Lancet* for February 6th as having recommended tobacco smoke as one remedy and placing the infected clothing on an anthill as another. Ants make short work of the pediculi. In the *British Medical Journal* for the same date, Dr. S. Monckton Copeman tells how, in cases where the soldiers were provided with a change of underwear, hot water was supplied for bathing by the purchase of second hand galvanized iron tanks of a capacity of 200 gallons, under which a fire was started in the trench, the men subsequently carrying the water into an adjoining marquee or empty house. The soldiers were directed, after drying themselves, to lather their bodies with cresol soap solution—water ten gallons, a proprietary cresol fluid one and a half ounce, soft soap one and a half pound—and to allow the lather to dry on. Their garments were treated in much the same manner, care being taken to rub the soap solution well into the seams. Mineral oil and gasoline are efficacious in these circumstances, but as Doctor Copeman points out, they are dangerous fluids on account of their inflammability.

SUCCESSFUL TREATMENT OF RODENT ULCER.

In the *Prescriber* for February, 1915, Dr. John Allan describes his treatment of a woman, forty years of age, who had a small pimple on the right side of the nose, which in three months showed as an indurated nodule about three eighths of an inch

square, about one inch from the inner canthus of the right eye. The central part showed a tendency to break down. The appearance was fairly typical of rodent ulcer. Doctor Allan began by giving five minute exposures twice a week, and later seven and a half minute exposures at each sitting of the x ray. Under this treatment improvement soon took place: the induration became less marked, and the growth became levelled out. Once a week he applied carbon dioxide snow for thirty to sixty seconds. The result was in every way satisfactory; the rodent ulcer disappeared, and a pleasing feature is the absence of any noticeable scar. Doctor Allan has at present under this combined treatment a case of lupus of the nose, and hopes that the treatment will be effective.

News Items.

The Missouri Foundation for Health Conservation has been incorporated, with Dr. Daniel Morton, of St. Joseph, as secretary. The objects of the foundation are the conservation of health and the prevention of disease. A laboratory will be established in St. Joseph for the use of physicians living in that city or its vicinity.

To Place Quarantine under Federal Control.—A delegation of physicians from the New York Academy of Medicine, headed by Dr. Charles L. Dana, visited Governor Whitman a few days ago regarding the transfer of the quarantine station of the Port of New York from the State to the Federal government. It is understood that the Governor is in favor of the transfer.

A Leper Colony to Be Established in Minnesota.—It is reported that the Minnesota State Medical Society intends to ask the State legislature to set aside 10,000 acres of land for the establishment of a leper colony. About fifty persons in the State are known to be suffering from leprosy. It is also proposed to establish a branch hospital at the State university for clinical purposes.

The Mayo Foundation.—At a meeting of the founders of the Mayo Foundation for Medical Education and Scientific Research, held in Rochester, Minn., recently, Dr. H. S. Plummer was elected president, Dr. E. S. Judd, vice-president, and Dr. D. C. Balfour, secretary. The directors of the corporation are Dr. C. H. Mayo, Dr. D. C. Balfour, Dr. W. J. Mayo, Dr. E. S. Judd, and Dr. H. S. Plummer.

Examination for Superintendent of a County Tuberculosis Hospital.—On Saturday, March 6th, the New York State Civil Service Commission will hold an examination for superintendent of the Oswego County Tuberculosis Hospital, at Orwell, N. Y., with a salary of \$1,200 and maintenance. This examination is open to men only who are licensed to practise medicine in New York State, and with at least three years' experience in the practice of medicine. Persons desiring to take this examination must file applications on blank form E-10 in the office of the State Civil Service Commission, Albany, N. Y., on or before March 2, 1915.

Rockefeller Foundation Gifts.—Since the establishment of this foundation, it has given away or pledged approximately \$6,400,000, of which amount gifts amounting to \$3,214,000 have been made at the personal direction of Mr. John D. Rockefeller. The principal gift directed by Mr. Rockefeller, amounting to \$2,550,000, was to the Rockefeller Institute for Medical Research. The directors of the foundation have given more than \$1,000,000 for war relief in Europe, of which more than \$975,000 has been spent for food supplies for Belgium. For the eradication of hookworm disease \$142,467 has been expended by the foundation, \$5,292 for the investigation of industrial relations, \$30,000 for medical work in China, \$10,000 to the American Red Cross for the relief of suffering in Bulgaria, \$10,000 for the relief of sufferers from a calamity in Japan, \$25,000 to the American Association for the Conservation of Vision, \$200,000 to the New York Association for Improving the Condition of the Poor, \$5,000 to the New York Milk Committee, and about \$50,000 to various New York charities to relieve distress caused by the war.

The Friends Hospital, Philadelphia.—Application has been made to the courts for amendment to the charter of the Friends Asylum for the Insane at Frankford so that henceforth the institution will be officially known as the Friends Hospital.

Wills Eye Hospital, Philadelphia.—At a meeting of the board of directors of City Trusts, held on January 13th, Dr. S. Lewis Ziegler, director of public health and charities of Philadelphia, was reappointed attending physician at the Wills Eye Hospital, and the following additional appointments to the hospital staff were made: Dr. P. L. Balentine, Dr. James Hunter, Jr., Dr. Paul B. Cassidy, and Dr. L. Waller Deicher.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, March 1st, Academy of Surgery, Philadelphia Clinical Association; Tuesday, March 2d, Wills Hospital Ophthalmic Society, Medical Examiners' Association, Philadelphia Laryngological Society; Wednesday, March 3d, Physicians' Motor Club (directors), College of Physicians, Lebanon Hospital Medical Society; Thursday, March 4th, Obstetrical Society; Friday, March 5th, Society of Normal and Pathological Physiology, Kensington and Southeast Branches of the County Medical Society.

Bulletin of the Rochester Medical Association.—The first number of a monthly bulletin, devoted to the interests of the Rochester, N. Y., Medical Association, has been issued by the board of directors of the association. This first number, which is dated February, 1915, contains an illustrated description of the home of the association, a list of Rochester hospitals and dispensaries, a program of various meetings of medical societies to be held in Rochester in the near future, an article on the medical library by Dr. Lewis H. Taylor, of Wilkesbarre, Pa., and a brief review of the progress of medical science. The board of directors consists of the following members: Dr. William B. Jones, president; Dr. Frank F. Dow, vice-president; Dr. David B. Jewett, secretary; Dr. Wesley T. Mulligan, treasurer; Dr. John O. Roe, chairman; Dr. Joseph R. Culklin, Dr. Elmer J. Bissell, Dr. Henry T. Williams, Dr. William Douglas Ward, Dr. Volney A. Hoard, Dr. Wallace J. Heriman, Dr. Lucius L. Button, and Dr. Myron B. Palmer.

Low Death Rate in New York Last Week.—During the week ending February 20, 1915, there were 197 fewer deaths reported than in the corresponding week in 1914, the death rate falling from 16.52 to 14.11 in a thousand of population. This decrease was undoubtedly due to favorable weather conditions. In measles, scarlet fever, whooping cough and typhoid fever the percentage of decreased mortality ranged from fifty to seventy-five per cent. The effect of good weather conditions was felt all along the line—diarrheal diseases, organic heart diseases, influenza, bronchitis, pneumonia, tuberculosis, Bright's disease and nephritis, all showed some decrease in the mortality rates. The deaths of extremely young infants, that is, those under one year of age, were sixty-eight fewer in number than in the corresponding week of 1914. Every age group showed a decreased mortality, but none as much as that of the infants. The deaths of old people, sixty-five years and over, were sixty fewer in number. The mortality in the city of New York since January 1, 1915, to date has been 13.95 in 1,000 of the population, against a rate of 14.85 during the corresponding period of 1914.

Public Health Council of the State of New York.—Under the provisions of statute 559 of the Laws of 1913, a public health council for the State of New York, consisting of the State Commissioner of Health and six appointed members, was organized on June 27, 1913, and has submitted to the Governor of the State a report of its work from the date of its creation to the close of the year 1914. This council was given authority to draft a sanitary code for the whole State, except the city of New York. This duty had previously been exercised by 1,438 local boards of health, and as a natural consequence these regulations have hitherto been most varied in character and frequently obsolete in nature and ineffective. The council has endeavored to enact a code which will be readily comprehensible to citizens, for whose use and guidance it was framed. So far seven chapters have been enacted, including definitions and general provisions, communicable diseases, production and handling of milk and cream, the practice of midwifery, labor camps, nuisances, regulations relating to spitting, the common drinking cup, the common towel, and barber shops.

Medical Society of the County of Jefferson, N. Y.—Officers to serve for the year 1915 were elected at the January meeting of this society, held in Watertown: President, Dr. S. E. Douglass, of Adams; vice-president, Dr. J. D. Olin; secretary, Dr. C. E. Pierce, of Watertown; treasurer, Dr. Paige Thornhill, of Watertown. Dr. C. N. Bibbins, of Watertown, the retiring president, was appointed a delegate to the meeting of the State society.

Personal.—A banquet was tendered recently to Dr. Daniel A. K. Steele, dean of the college of medicine of the University of Illinois, in celebration of his forty-two years in the practice of medicine. Eighty-four guests attended the banquet, which was presided over by Dr. C. S. Bacon.

Dr. Leyellys F. Barker, professor of medicine at Johns Hopkins University, Baltimore, was the guest of honor at the thirty-third annual banquet of the McGill Medical Society, Montreal.

Dr. Adelaide Brown, of San Francisco, has been appointed a member of the California State Board of Health, to succeed Dr. O. Stansbury, of Chicago.

The New York Department of Health to Establish a Bureau of Industrial Hygiene.—The Department of Health of the City of New York is planning to establish a Division of Industrial Hygiene, which will be under the general supervision of the director of the Bureau of Infectious Diseases and closely associated with the Bureau of Public Health Education. The chief of the new division will be expected to coordinate all the resources and activities of the Bureaus of Public Health Education, Laboratories, and Sanitation as having any bearing on occupational diseases. The commissioner of health recently requested the Committee on Public Health Education of the Advisory Council to consider the advisability of establishing a bureau of industrial hygiene in the department, and this committee appointed a subcommittee, with Dr. George M. Price as chairman, to present a report on the subject. This report, which has been approved by the Committee on Public Health Education, points out that it is within the functions of the health department to establish a bureau of industrial hygiene, inasmuch as it is the function of the department to preserve the health of the citizens of the city in the prevention of disease. The report contains an outline of what are the objects and aims of such a bureau, and closes with a statement of the belief that a bureau of industrial hygiene organized on the lines indicated would be a potent factor in the reduction of mortality and morbidity in the city.

Doctor Carrel's Work in French Military Hospitals.—Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, who has been in charge of the military hospital at Lyons ever since the war broke out, has been detached from that hospital and placed by the French Government in charge of a hospital at Compiègne, which is near the northern line of battle. For the use of the patients in charge of Doctor Carrel and his assistants, the Government has requisitioned a hotel which has been converted into a hospital with accommodations for about one hundred persons. The Government will provide administrative officers as well as competent surgeons suggested by Doctor Carrel, to carry on the regular work, thus leaving Doctor Carrel free to perform his characteristic operations, especially in the line of transplanting tissues, bloodvessels and nerves, and blood transfusion, and to conduct the laboratory studies which are about to be undertaken.

In order that the work under Doctor Carrel may not only be of the greatest effectiveness at the moment, but may be made permanently available to the world of science, the Rockefeller Institute is equipping Doctor Carrel's hospital with complete apparatus for research in the bacteriological, pathological, chemical, and surgical conditions which may arise. Hence it is that he is to have a staff consisting of bacteriologists, chemists, and technicians, forming a laboratory unit in addition to the regular surgical unit of the hospital. He is fortunate in being joined by Dr. H. D. Dakin, who has been for many years in this country and has a distinguished reputation as a chemist. He has been assigned to take charge of the chemical part of this humane work of investigation.

The Rockefeller Foundation has just voted an appropriation of \$20,000, to be used under the direction of the Rockefeller Institute, in furthering medical research work under war conditions. The institute has had many appeals made for serum for use in the treatment of meningitis and dysentery, and these serums have been distributed freely.

Gifts and Bequests to Hospitals.—By the will of Alexander A. McKay, of Chicago, the Mary Thomson Hospital for Women and Children and the Home for Destitute Crippled Children, Chicago, will each receive \$100,000.

By the will of Mrs. Ellen A. R. Goldthwaite, widow of the late Joel Goldthwaite, the Robert Bent Brigham Hospital, of Boston, will receive \$50,000.

By the terms of the will of Albert Arnold Sprague, the Chicago Presbyterian Hospital, of Chicago, will receive an endowment fund of \$50,000 to be known as the Albert Arnold Sprague endowment.

By the will of Mrs. Sara E. Woodworth the Free Hospital for Women in Brookline, Mass., will receive \$6,000.

The will of Mrs. Agnes Norval French, who died in Davenport, Iowa, a few weeks ago, contains a bequest of \$50,000 to be used to found an Episcopal Hospital in that city. It is believed that the money will be used to build an extension to St. Luke's Hospital, which is under the management of the Episcopal Church.

Antiquack Legislation.—A bill aimed at quack medicines and the physicians who lend their names and influence to the sale of such remedies, as well as those who unduly advertise themselves, has been introduced in the New York State Senate by Senator George H. Whitney, of Saratoga, at the instance of the State Department of Education. The bill defines as "unprofessional conduct" the advertising of services or remedies in any manner previously challenged by the State Board of Medical Examiners and disapproved by vote of the Regents. It also declares it "unprofessional" for a physician to continue in the employ of any person, firm, or corporation whose advertising has been similarly challenged; to make a practice of writing letters or of sending out circulars or employing a capper, solicitor, or drummer to secure patients.

Willfully to betray a professional secret, habitual drunkenness or addiction to drugs, or to divide or promise to divide a fee with another physician, or accepting a divided fee without the knowledge of the person paying such fee are also to be "unprofessional."

The bill also regulates the issuance of licenses for the regents. Violators are made subject to criminal prosecution.

The Harrison Law Concerning Narcotic Drugs. What Every Doctor Must Do.—Under the Harrison Antinarcotic Law, in effect March 1, 1915, every physician, dentist, veterinarian, and druggist must register with the collector of United States Internal Revenue for the district in which his office is situated before March 1, 1915, paying an annual tax of one dollar and receiving a registry number.

He must prepare before March 5th a sworn inventory of all opium, coca, and derivatives, or preparations thereof, which he has on hand on March 1st, and must keep this inventory subject to inspection.

He must purchase from the collector duplicate order blanks on which alone he can obtain the drugs named for his own dispensing, but which are not to be used for prescriptions.

He must give on each prescription his registry number, the date, his full name and address, and that of the patient. Such prescriptions cannot be refilled if they contain more than the stipulated maximum quantity of the drug named.

He must keep a record of any such drugs furnished by him to any one except patients upon whom he is in personal attendance, giving the name of the patient, the date, and the kind and quantity of the drugs so dispensed.

He must not give orders or prescriptions for the drugs named, by telephone.

He must not give instructions to have such prescriptions refilled, but must write a new prescription each time.

He must not furnish such drugs to anyone, except his bona fide and personal patients.

He need not keep any record of doses given or administered to his patients during personal attendance on them.

Exemptions: Government, State, and Municipal officials are exempt while acting in an official capacity.

Employees of registered persons need not be registered.

The penalty for infraction of this law is a fine of not more than \$2,000, or imprisonment for not to exceed five years, or both.

An official copy of the law and the regulations will be sent free of charge on receipt of a two cent postage stamp to any paid up subscriber by the NEW YORK MEDICAL JOURNAL, 66 West Broadway, New York.

Contributions to the Belgian Relief Fund Received during the Past Week.—The treasurer of the Committee of American Physicians for the Aid of the Belgian Profession reports that the following contributions to the fund were received during the week ending February 20th: Dr. Sylvester McNamara, Brooklyn, N. Y., \$5; Dr. J. Watanabe, Seattle, Wash., \$5; Anonymous—B, Pittsburgh, Pa., \$30; The Erie County Medical Society, Erie, Pa., \$25; Dr. Hugh Cabot, Boston, Mass., \$25; Dr. E. Evans, La Crosse, Wis., \$10; Dr. W. J. Herrington, Bad Axe, Mich., \$10; Otero County Medical Society, La Junta, Colo., \$25; Vermilion County Medical Society, Danville, Ill., \$25; Dr. Eva Charlotte Reid, San Francisco, Cal., \$5; Dr. Howard Carter, Webster Groves, Mo., \$5; Dr. G. H. Torney, Brookline, Mass., \$5; Dr. John B. Murphy, Chicago, Ill., \$100; Dr. D. E. McGillivray, Port Angeles, Wash., \$5; Dr. Charles N. Spratt, Minneapolis, Minn., \$100; Dr. J. M. Thorne, Pittsburgh, Pa., \$5; Western Physicians' Association, Western, R. I., \$10; Dr. J. P. Long, Chicago, Ill., \$1; Dr. Roy Sexton, Streator, Ill., \$5; Dr. D. E. Cornwall, St. Maries, Idaho, \$5; Aesculapian Club of Buffalo, Buffalo, N. Y., \$25; Pocatello Medical Society, Pocatello, Idaho, \$10; Dr. A. R. Thomas, West Eaton, N. Y., \$5. Receipts for week ending February 20th, \$146; previously reported receipts, \$3,133; total receipts, \$3,579.

The Seventh Pan-American Congress will be held in San Francisco from June 17th to 21st immediately before the meeting of the American Medical Association. The national committee is composed of Dr. C. A. L. Reed, of Cincinnati, president; Dr. A. Van der Veer, of Albany, first vice-president and treasurer; Dr. H. L. E. Johnson, of Washington, second vice-president; and Dr. Ramon Gutierrez, of New York, secretary-general. The former presidents of the American Medical Association and the general secretary are vice-presidents of the congress for the United States as follows: Dr. Frank Billings, of Chicago; Dr. Abraham Jacobi, of New York; Dr. W. W. Keen, of Philadelphia; Dr. Lewis F. McMurtry, of Louisville, Ky.; Dr. Joseph M. Matthews, of Louisville, Ky.; Dr. W. J. Mayo, of Rochester, Minn.; Dr. Henry O. Marcy, of Boston, Mass.; Dr. John B. Murphy, of Chicago; Dr. W. L. Rodman, of Philadelphia; Dr. George H. Simmons, of Chicago; Dr. A. Van der Veer, of Albany, N. Y.; Dr. Victor C. Vaughan, of Ann Arbor, Mich.; Dr. C. S. Witherspoon, of Rochester, and Dr. John A. Wyeth, of New York.

The following are the foreign vice-presidents of the congress: Argentina, Professor H. Piñero, Asistencia Publica, of Buenos Aires; Bolivia, Professor Andres Munoz, of La Paz; Brazil, Professor Oswaldo Cruz, of Rio Janeiro; Chile, Professor Eduardo Moore, of Santiago; Ecuador, Professor E. Gerardo Roca, of Guayaquil; Uruguay, Professor Jose Scoseria, of Montevideo; Colombia, Professor P. Martinez, of Bogota; Venezuela, Professor B. Mosquera, of Caracas; Paraguay, Professor Pedro Pena, of Asuncion; Cuba, Professor Juan Gutierrez, of Habana; Guatemala, Professor Manuel Aparicio, of Guatemala; Haiti, Professor M. Demond; Honduras, Professor Carlos Romero; Martinez, Professor J. J. Cornillae; Salvador, Professor Carlos Liaba, of San Salvador; Santo Domingo, Professor Fernando A. D'Fillo; Mexico, Professor Regino Gonzales, of Mexico City; Costa Rica, Professor E. Echeverria, of San Jose; Dominion of Canada, Professor Oswaldo M. Jones, of Victoria; Nicaragua, Professor J. Baptista Sacasa, of Leon.

An international executive committee has been appointed, consisting of one member from Canada and one from each of the republics of the Latin Americas and the West Indies. The proceedings of the congress will be carried on in six sessions as follows: Medicine, including diseases of children, diseases of the mind and nervous system, military medicine, dermatology and syphilography, pharmacology and therapeutics; surgery, including the surgical specialties, not otherwise provided for, such as abdominal, orthopedic, military, ophthalmological, and urological; obstetrics and gynecology; anatomy, physiology, pathology, and bacteriology; preventive medicine and public health, including general hygiene and demography, marine hygiene, and quarantine; laryngology, rhinology, and otology. There will be a number of linguists at the office of the secretary-general, Dr. Ramon Gutierrez, 80 Madison Avenue, New York, to translate letters or give any information that may be desired.

LIST OF CURRENT LITERATURE.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE

December 5, 1914.

Artificial Pneumothorax in a Diabetic, by Joh. Bossart. The case was simply one of a patient who had had diabetes for a number of years and signs of pulmonary tuberculosis with albumin in his urine. Artificial pneumothorax was induced on one side. The improvement was very marked, the albumin was much reduced, the sugar slightly. Though it is doubtful whether the diabetes was really bettered, it appears that the presence of this disease does not furnish a contraindication to the operation.

December 12, 1914.

Dementia præcox Excited by Call to Military Service, by Johann Joergler.—Seventeen cases are reported in which he thinks that the mobilization or call to military service acted as a psychic traumatism to excite this disease.

December 19, 1914.

Sunlight Treatment of Tuberculous Osteoarthritis, by A. Rollier. Remarkable results are given in 2,000 cases of tuberculous bone and joint disease during the last ten years from exposure of the body to the sunlight, by which he believes that such lesions can be cured at all ages. In Pott's disease of the spine he keeps the patient lying prone with his back exposed to the sunlight, which cures the disease while the position tends to correct the deformity. He does not use plaster, but only such extension apparatus as will permit of the development of the muscles. He reports 158 cases of hip joint disease thus treated, of which 125 were cured, 102 with restoration of function. Of 120 knee cases, 106 were cured, seventy-eight with restoration of function, and of 198 cases of Pott's, 171 were cured and eighteen improved. Other forms of the disease showed like results. It is possible that altitude had something to do with the treatment. He has a sort of colony of patients where they do certain kinds of farm work, or other labor than can be done out of doors, thus enabling them to support themselves partially, and at the same time fit themselves for employment when they leave his institution.

Operative or Conservative Sunlight Treatment of Tuberculosis of the Bones and Joints, by J. Kopp.—Kopp seems to think Rollier too optimistic and prefers to operate unless the disease is in its early stages, or is too far advanced, because the course of treatment is much shortened thereby. He does not think the sun should be expected to do all the work.

MUNCHENER MEDIZINISCHE WOCHENSCHRIFT.

January 26, 1915.

Valamin in Cardiac Disease, by B. Lewinsohn. The preparation is the valerian ester of amylene hydrate and has a powerful hypnotic and sedative action. It has been used with benefit in cardiac disease. The dose usually employed is two ampoules; at times, a third is found to be necessary.

The Cerebrospinal Fluid in Diagnosis, by V.

Kafka.—In counting the number of cells in the cerebrospinal fluid, the counting chamber of Fuchs-Rosenthal is employed. When this chamber is used five is the number which divides the positive from the negative cases. It is to be remembered that the cell content of the cerebrospinal fluid is not constant and that the count is subject to great variations. In estimating the globulin content the centrifuge is used, and it has been found that the globulins in different diseases are precipitated in various concentrations of ammonium sulphate. In twenty-eight per cent. concentration, the globulins of acute meningitis are precipitated; in thirty-three per cent. concentration, those found in paralysis, and in forty per cent. concentration, those found in chronic cerebral lues. The relation between the globulin content and the total albumin content of the fluid is of importance. An increase in the globulin content without an increase in the total albumin content is very rarely seen. The ratio of the total albumin content to the globulin content is as six to one in acute meningitis; as twelve to one in lues cerebri. In performing the Wassermann reaction, it is at times necessary to use one fourth or one half of the amount of the reagents prescribed when the amount of the cerebrospinal fluid is small. In the hemolysin test the cerebrospinal fluid should be fresh and bloody fluid can only be used after it has been centrifuged. The different reactions of the cerebrospinal fluid cannot be compared with each other.

WIENER KLINISCHE WOCHENSCHRIFT.

January 7, 1915.

Coagulen in the Treatment of Hemorrhage, by Herman Riedl.—Coagulen is a preparation of the blood platelets of animals. According to the most modern views, the platelets are supposed to contain the thrombozyme which unites with the thrombogen of the blood plasma after the latter has been discharged from the bloodvessel and, in the presence of calcium salts, causes the blood to clot. It is a yellow powder, soluble in water, and can be sterilized without endangering its efficiency to a great degree. Locally, it is used in operations to check parenchymatous bleeding. It is also given hypodermically and intravenously, especially in cases of hemophilia and hemorrhagic diathesis. When given intravenously, it should be diluted in the proportion of one gram of coagulen to ten c. c. of distilled water and it should be sterilized by boiling for a few minutes. Pulmonary hemorrhages are favorably influenced by its use and the author reports the case of a young man who was a bleeder and who had a severe pulmonary hemorrhage which could not be checked by the application of ice locally, or by the administration of drugs, as morphine, stypicine, ergotin, etc. An intravenous injection of coagulen was given which caused a cessation of the bleeding in a very short time.

Pathology and Therapy of Dysentery, by H. Salomon.—Dysentery occurs in three varieties, amebic dysentery, bacillary dysentery, and a sporadic form which runs a rather chronic course and the exciting cause of which is not known. The term colitis ulcerosa has been applied to this form. The ameba is found in the stools and the source of infection is probably in the water, although con-

tact and laboratory infections have been reported. The exciting causes of bacillary dysentery are the bacillus described by Shiga and Kruse, which resembles the typhoid but is not motile, and the bacilli described by Flexner, Strong, and Bacillus Y (Hiss and Russell). Anatomically the first change in bacillary dysentery is a redness and swelling of the mucosa of the large intestine. At the summit of the folds of the intestine small ecchymotic spots appear. Later, flat ulcers with infiltrated edges are seen, which, for the most part, have a transverse direction. The period of incubation is from two to seven days. There may be a prodromal stage lasting a few days, during which time a slight elevation of temperature is present and the patient may have vague abdominal symptoms, or the attack may be ushered in with severe diarrhea and cramps. Some of the patients die within a few days. The disease usually reaches its acme in from two to four days and then gradually subsides. Peritoneal complications are rare. As sequelae, polyarthritides, disturbances of the nervous system, and conjunctivitis are seen. The prognosis of bacillary dysentery is rather favorable, much more so than that of amebic dysentery. Prophylaxis consists in absolute cleanliness of the hands and food. Fruit can be laid in a four per cent. formalin solution and disinfected in this way without interfering with its taste. Vaccination as a prophylactic measure, is of benefit. In the treatment of dysentery the diet in the beginning should consist of thick soups. Tea, and tea and cognac may also be given. When the stools become fecal in character, eggs, bread, and white meats may be added. Ipecac is given in the form of emetine. It is of especial value in amebic dysentery and can be given subcutaneously. Opium and codeine are used to combat the pain and tenesmus. Injections of polyvalent serum in the dose of twenty to forty c. c., repeated on two successive days, have also helped.

January 14, 1915.

Bacteriotherapy of Acute Infectious Diseases, by Kraus.—In the treatment of typhoid with injections of vaccines, it has been found that after the second or third injection the temperature falls by lysis and the case goes on to cure. The injections are given in doses of from five to one hundred million and the bacteria are killed either by heat at 70° C. or by ether. Intravenous injections give better results than subcutaneous. After intravenous injections there is a sharp rise of temperature followed by a sharp decline. The death rate was eleven per cent. in a series of cases that were injected compared to thirty per cent. in noninjected cases. Whether the drop in temperature following the injection of typhoid bacilli is an anaphylactic phenomenon is questionable. Bacterial anaphylaxis is as specific as serum treatment. Animals treated with a specific germ do not show any anaphylactic phenomena when other germs are injected. Injections of *Bacillus coli* were given and it was proved that the patients reacted in a similar way as when typhoid bacilli were injected, showing that the reduction in temperature could not be attributed to anaphylaxis. Colon bacilli in the dose of twenty-five to fifty million were injected intravenously in cases of puerperal infection with good results; also

with success in staphylococcal septicemia and infections produced by *Bacillus pyocyaneus*.

January 17, 1915.

Prognosis and Therapy of Tetanus, by Otto Chiari.—A small series of cases is reported. In the severest cases the period of incubation varied from eight to fifteen days; in the moderately severe from seven to twenty days. The cases were treated with injections of serum into the spinal column. From sixty to one hundred units (German) were injected every second day, and on the other days the same dose was given subcutaneously. In addition, the patients were kept very quiet, the room darkened, and from four to six grams of chloral hydrate were given daily per rectum in the form of enemata. With this method of treatment the mortality was only ten per cent.

Wassermann Reaction in Pemphigus, by Max Hesse.—The Wassermann reaction was performed in a number of cases of pemphigus, all varieties being included, and the majority of the cases gave a positive reaction. The results were the same whether the reaction was performed at the beginning of the disease or after it had fully developed; when blood serum or the matter in the blebs was used. As a result, the author concludes that the Wassermann reaction is a characteristic of pemphigus, but this finding throws no further light on the cause of the disease.

Bacteriotherapy of Typhoid, by S. Mazza.—Bacteriotherapy in the treatment of typhoid is not at all dangerous; the results following its use are very satisfactory. It can be employed at any period of the disease, in severe as well as in mild cases; also in the presence of complications, as these usually show improvement. It is best administered in the form of a polyvalent vaccine, and the best method of introduction is by intravenous injection, as in this way the action is quicker and the course of the disease is shortened. The number of injections depends upon the course of the disease and especially upon the temperature. If the temperature rises again after the critical fall the injection should be repeated.

January 28, 1915.

Gas Phlegmons in X Ray Pictures, by Gottwald Schwarz.—Röntgen pictures show the presence of gas phlegmons in the form of round or oval spots which are dark in the negative and light on the positive. At times they are discrete; at other times they are confluent. This finding is of importance, as the diagnosis of gas phlegmon can be made before incising.

Vaccine Treatment of Typhoid, by A. von Korányi.—In the series of cases reported, Ichikawa's serum was employed. The dose given was from 0.4 to 0.5 c. c. The dose of 0.3 c. c. was found to be too small, while the dose of 0.6 to 0.8 c. c. was found to be too large. In all, twenty-four cases were treated without any mortality. After injection, the patients experienced more or less reaction in the form of chills, rise of temperature followed by a fall with sweating, the temperature at times becoming subnormal. The cases can be divided into four groups: 1. Those that make an uneventful recovery; 2, those in which the temperature rises moderately and comes down by lysis in a few days; 3, those in

which, after a rather sharp rise of temperature, there is a decided improvement; and, 4, those that remain uninfluenced. The different results are probably due to the idiosyncrasies of the patients. It cannot be definitely determined whether a revaccination helps after the primary vaccination has failed. In some cases typhoid can be aborted by means of Ichikawa's vaccine before the dangerous complications develop; the first week presents the best time for successful treatment. Cases that have been aborted and recur usually respond a second time to the abortive treatment.

Nervous Shock after Shrapnel Explosions, by Arthur von Sarbo.—The brain and spinal cord are particularly affected in the explosion of shrapnel. The condition observed is described as *commotio* of the nervous system. The cytological structure is attacked, the ganglion cells and fibres, but the damage sustained does not go on to degeneration of the nerve substance. These cases merely show paralytic symptoms without the concomitant symptoms which accompany degeneration of the nerve substance.

PRESSE MÉDICALE.

December 31, 1914.

Traumatic Splenopneumonia, by Ernest Schulmann.—Report is made of a case of this nature, showing that a wound carrying infection directly into the lung may give rise to the same symptom complex as that which is found in cases of tuberculosis, influenza, acute articular rheumatism, and in the pregnant state by Grancher, and termed by him splenopneumonia. Pathologically, the condition is looked upon as an epithelial inflammation with seroalbuminous exudation—an affection that may be grouped with the infectious edemas of the lungs. A perforating wound of the lung may thus give rise to a pseudopleuritic syndrome analogous to infectious edema of the pulmonary parenchyma. The condition seems to run a favorable course, without any tendency to suppuration.

RIFORMA MEDICA.

January 10, 1915.

Cardiopsis, by Rummo.—Many cases of so called cardiac neurasthenia with cardiac excitability, cardiac erethism, and idiopathic hypertrophy are really cases of cardiopsis. Rummo divides cases into two classes, one where the heart drops downward and toward the left, another where the heart falls transversely into the diaphragm. The condition is described as a pathological one characterized by a lowering of the level of the heart from weakening and relaxation of its supports without appreciable variation in its volume, or of endothoracic or intraabdominal pressure. It is due to a congenital abnormality shown by a lack of tonicity and tension in the means of suspension of the heart. There is also an elongation of the great arterial trunks at the base of the heart.

Prophylaxis of Syphilis and Venereal Diseases, by R. Stanziale.—Venereal disease in addition to raising mortality, produces incapacity for work, conjugal separation and divorce, impoverishment and racial degeneration, sterility and diminution of population. Extragenital infection occurs in six

to seven per cent. of cases in men and ten to twelve per cent. in women. The best preventive scheme seems to be that of civic or state control of prostitution, with frequent and regular examinations, preferably with treatment. This, naturally, involves the exclusion of infected women from sexual commerce until completely cured. Continence cannot be relied upon, therefore youths of eighteen years and over should be instructed both as to the dangers attendant upon sexual intercourse and the means of prevention of infection.

Echinococcus Cyst of Supraclavicular Fossa, by F. Marsiglia.—Cases of this condition are rare outside of the lungs, liver and kidneys. A case is described in a woman aged thirty-six years, in whom there was a marked cystlike swelling in the left supraclavicular region, with obliteration on that side of not only the radial, but also of the brachial and axillary pulse. There was marked atrophy of muscles of left forearm and hand with disturbance of tactile sense. Operation revealed that it was of echinococcus origin: recovery followed.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS

January 28, 1915.

Application of Forceps above the Superior Strait, by J. De La Muela.—Indications are slight excess in size of fetal head, lack of engagement of head from insufficient uterine contractions, moderate contraction of pelvis usually in anteroposterior diameter. Other causes are hemorrhage and eclamptic attacks. It is essential in such cases to introduce the hand to guide the forceps blades, as their slipping is usually due to irregular or imperfect application. Severe lacerations frequently result from such accidents. Another danger is fracture of the child's cranium, especially if ossification is well advanced. Considering the dangers of the forceps operation, podalic version is to be preferred, as with it injury to mother and child is less common, also the operation is more rapidly and easily done. One may limit the use of the high forceps operation to cases with slight contraction of the pelvis where the fetal head is of normal dimensions.

BRITISH MEDICAL JOURNAL

January 24, 1915.

Diagnosis and Treatment of Parenchymatous Syphilis, by F. W. Mott.—Citing others who have found spirochetes in the brain of patients dying from general paralysis, Mott records his own findings of positive results in sixty-six per cent. of 100 brains examined. He suggests that in this form of syphilitic infection symptoms are caused by spirochetes, which are multiplied locally with liberation of toxins and the development of a congestive reaction. Unilateral seizures are indicative of the location of the brain focus: Mott has noted post mortem that the more severely affected portions are smaller than the rest of the brain. The organisms are not diffusely present, but are localized in small foci. The spirochetes can be isolated in a motile state from the brains of living subjects, or post mortem, attempts at infecting animals with them have failed. In tabes, spirochetes are not present to any extent in the tissues of the spinal cord, the

lesion is probably caused by their toxins passing along lymph channels. Tabes and general paralysis have a decidedly different pathogenesis. The inflammatory reaction which occurs about the foci of the organisms in the brain in general paralysis leads to antibody production and destruction of some of the organisms with a recession of the symptoms. The residual destruction of the nervous tissues leaves its stamp. Some of the organisms resist the action of the antibodies and later multiply with a recrudescence of symptoms and a greater residual damage after each partial recovery. From clinical and experimental observations, it seems that mercury does not directly destroy the spirochetes, but rather that it stimulates the powers of resistance of the host. On the other hand, the organic arsenicals probably attack and destroy the accessible organisms directly. Combined arsenical and mercurial treatment finds its rational basis in this dual action on the spirochetes. In parenchymatous syphilis of the nervous system, the Wassermann reaction is the one trustworthy guide aside from the clinical symptoms. The intensity of this reaction also gives some index to the activity of spirochetes. Owing to the foci of spirochetes and impenetrability of the arachnoid to drugs and antibodies, it is hardly to be expected that general paralysis will yield to efforts at treatment; it is the opinion of the author that no means of treatment yet adopted has any effect on the localized collections of spirochetes. On the contrary, treatment is not infrequently provocative of damage. With tabes the case is different, for the destruction of the foci of organisms which are sending toxins to the tissues of the cord may lead to the checking of the disease at the point at which treatment was instituted.

February 6, 1915.

The Employment of Ether in Surgical Therapeutics, by Herbert F. Waterhouse.—The author has used ether as an antiseptic for all types of infected or soiled wounds with notable success: Psosas, and other tuberculous abscesses; gangrenous and perforative peritonitis; compound fractures; carbuncles, both locally into the carbuncle and injected into the neighboring tissues; injection into tuberculous glands; tuberculous synovitis and arthritis; septic wounds of soft tissues; discharging sinuses; osteomyelitis; suppurating buboes; and in cases in which incisions were made through imperfectly cleansed tissues. In such cases, as well as in many others, the author finds ether specially useful in peritoneal infection, acute secondary infective arthritis, and septic gunshot wounds. About three ounces, as a maximum, are introduced directly into the peritoneal cavity and left there to be slowly absorbed when there is infection, or when there has been soiling of the peritoneum during an operation. If drainage is used, the wound about the drainage tube must be tightly sewed and the free end of the tube should be occluded for several hours to prevent evaporation of ether. Larger amounts than three ounces have been used in a few instances, but in several the patient slept rather too long and too deeply. In one instance in which a large amount of ether was used, artificial respiration was necessary

for a short time. In the cases of arthritis due to pyogenic infection, the joint is aspirated, a small quantity of pure ether is then injected, and the joint fixed by a Buck's extension. Where septic lacerated wounds, such as those caused by missiles, are encountered, ether is poured into the wound and permitted to boil away for several minutes, being replaced from time to time. The wound is then dressed with gauze soaked in ether. In all cases which he has treated by the local application of ether, the author has observed no instance of harmful effects, except in the one or two in which too large amounts were left in the peritoneal cavity.

Action of Ether on Certain Microorganisms, by W. W. C. Topley.—Experiments have been conducted to explain the beneficial effect of ether as previously described by Waterhouse. It was found that comparatively brief exposure of a considerable variety of pathogenic organisms to the vapor of ether at the body temperature led to their destruction. The most susceptible organisms were found to be the pneumococcus, streptococcus, pyocyanus, and *Bacillus coli*. The bactericidal action of liquid ether was also found to be marked, but varied considerably with the physical conditions under which it was permitted to act. Its immiscibility with aqueous fluids and its fat solvent powers are probably largely concerned in this action. Injected into the peritoneal cavity it produces an effusion of low cell content; it seems probable that this effusion plays but a slight role in its beneficial effects in clinical use. The same can be said of the effusion which it produces in joint cavities. Contrary to clinical experience, it was found to increase the dangers of peritoneal infection in animals and, while it seemed to act favorably in experimental arthritis in animals, it did not sterilize the point completely and produced a marked purulent exudation. Its stimulant action on the tissues with which it comes into contact, combined with its direct bactericidal action, probably accounts for its therapeutic effects in cases of human infection.

LANCET.

February 6, 1915.

Embalment of Septic Wounds, by Louis Menci re.—All septic wounds should be washed successively with three antiseptics—first, corrosive sublimate, one to 1000; then phenol, one in 40; and lastly hydrogen peroxide, one in three. The use of these three is to destroy all organisms, some of which are more susceptible to one than to the others. Four days thereafter this washing should be repeated, and then only peroxide should be used to prevent damage to the tissue cells. The wounds should be left open or freely drained and then should be embalmed with the following solution: iodoform, 10 grams; guaiacol, 10 grams; eucalyptol, 10 grams; balsam Peru, 30 grams; ether, 100 grams. This is to be applied on gauze and constitutes a powerful antiseptic which does not damage the tissues. It may also be injected into sinuses. The same solution made more dilute by the use of 1000 grams of ether may be used to wash the wounds before embalment.

Simple Method of Administering Drugs under War and Other Strenuous Conditions, by F. W. Tunnicliffe. Seeking some means by which drugs

might be dispensed in a form permitting of their ready administration to disabled persons under conditions when the ordinary means of hypodermic injection or of measuring doses for oral administration are almost impossible, the author has had various drugs incorporated into a partly solid cream. The medicated cream is filled into collapsible tubes and made of such a strength that one inch of the ejected contents contains a dose of the drug. By this means almost any drug can be accurately administered under the most unfavorable conditions, for the last joint of the thumb may be taken as the measure of one inch. The drugs are also readily portable in this form and can be easily given to an unconscious person who could not swallow medicine in any of the common forms. Such creams can be prepared also to contain drugs for local external application.

Treatment of Persistent Diphtheria Infection, by R. Tanner Hewlett.—Small doses, ranging from half to one and a half c. c. of diphtheria endotoxin, injected intramuscularly at intervals of about a week, have given very satisfactory results in the clearing up of cases of persistent infection by the diphtheria bacillus. Twenty-four cases have been treated thus, of which seventeen lost their bacilli in a reasonable time, one required seventeen days before they disappeared, and six were unsuccessful. The injection produces some local pain and soreness and slight malaise, rash, and rise of temperature in some cases.

PRACTITIONER.

January, 1915.

Studies of Internal Secretions.—The papers in this number are—The Theory of Internal Secretion: Its History and Development, by E. Gley; The Physiology of the Thyroid Gland, by H. H. Dale; Thyroid Insufficiency, by E. Hertoghe; Endemic Goitre, by Robert McGarrison; Exophthalmic Goitre, by Leonard Williams; The Parathyroid Glands, by Arthur F. Hertz; The Physiology of the Chromaffin System, by D. Noel Paton; The Adrenal Glands, by T. R. Elliott; Pluriglandular Insufficiency: Its Incidence and Treatment, by Henry R. Harrower; and The Functions of the Pituitary Body, by Swale Vincent.—Gley classifies the endocrine glands in two groups, the nutritive, which are employed in the transmutation of matter, and the regulatory and stimulatory glands, which elaborate hormones. Of the former the liver alone has received adequate attention, and there is wide room for investigation of the latter. The two best known hormones are secretin and adrenaline, yet a great deal is not yet known of the former. The best methods of research are those by which the discovery of adrenaline was effected, and we need to know as much concerning the principles secreted by the thyroid and other ductless glands. Dale describes what is known of the physiology of the thyroid; our knowledge is still so imperfect that the paper is hard to abstract, it should be read in the original. As Hertoghe says, all that we can affirm with certitude is that the thyroid governs the building up of the cells, that is the formation and growth of the tissues, and that it regulates the destruction of the albumin molecule and governs the processes by which waste material is eliminated. Thyroid insuf-

iciency in children is attended by a more or less complete arrest of the normal processes of growth, with a varying degree of infiltration, the intensity of both symptoms depending on the degree of inadequacy. In the adult we find only infiltration, the amount varying according to the degree of insufficiency and the duration of the disease. With few exceptions there is no tendency to spontaneous regression of this infiltration. Pregnancy stimulates the thyroid; some women are never so well as during pregnancy, but this stimulation does not continue after the periods of gestation and lactation have passed. The nutrition of all the tissues of the body is affected, no tissue escapes, so the symptoms are very comprehensive, involving more or less every organ, and each specific function. A detailed account is given of the effects produced on the muscles, central nervous system, bones, glands, mucous membranes, and epidermis, as well as the great organic apparatus. Heredity plays a considerable part in etiology. Treatment consists of a very careful administration of thyroid extract.—McCarrison gives the course and symptoms of endemic goitre, which he considers essentially a place disease. All races suffer from it and it is doubtful if heredity plays any part in its etiology. Newcomers to an endemic area are very susceptible to it, but this susceptibility tends to diminish with increasing age. Factors that favor its development are those that impair the functional activity of the thyroid, that make undue demands upon its functional powers, and favor the entry of the excitant or excitants of the disease into the body. Spontaneous recovery is not uncommon but the immunity conferred by an attack is of a very transitory character. The number of erythrocytes and of leucocytes is reduced, that of the small mononuclear cells, and of eosinophile cells is increased; the coagulability of cells is increased, but there is no blood picture that can be said to be characteristic of either Graves's disease or of simple goitre. No organisms of a bacterial or protozoal nature that can be considered causal agents have been found. Still goitre appears to be infectious. Man and domestic animals are the great source of the disease, so it is necessary to avoid contamination of the hands and food in infected localities. Drinking water should be sterilized. Treatment depends on the stage of the disease. When secondary degenerative changes have taken place the case must be treated surgically, otherwise it may be treated medically. Iodine is the most potent known remedy, but must not be given when cardiovascular symptoms are present. The most potent intestinal antiseptic is thymol. Salol and betanaphthol are more convenient, but less efficient. Large doses of quinine are often useful in early cases, and dilute hydrofluoric acid, one to 500, in doses of twenty to sixty minims, has been employed successfully. Sour milk prepared from a good strain of the Bulgarian bacillus is useful either alone or as an adjunct. Autogenous vaccines prepared from intestinal organisms of the colon group have been used successfully in recent cases. General hygiene is very important. Thyroid extract is sometimes effective, especially when combined with potassium iodide or arsenic.—Williams maintains that Graves's disease is not a condition of pure hyperthyroidism, that symptoms of thyroid insufficiency

exist side by side with those of thyroid excess. He does not believe that the thyroid is the original offender in the causation of the disease, or that the mental symptoms ever completely disappear, even though the physical signs may. Treatment must be symptomatic until the etiology becomes known. The main thing is rest in a sedative climate in the open air, and an atmosphere of restraint, routine, and discipline. The only bromide of use is the bromide of quinine, but this should be discontinued if good results are not obtained within a fortnight. Aspirin is useful, and so is belladonna. Chloride of calcium seems to do some good. Surgical intervention he has found to be useless. This he thinks to be because the thyroid is not the original seat of the trouble, and that no more can be expected from an operation on it than could be expected from one on the kidney in diabetes.—Vincent finds that the anterior lobe of the pituitary body is essential to life, and related in some way to the growth of the body, especially of the skeleton. Important changes take place in it during pregnancy. The intermediate portion secretes one or more hormones which raise the blood pressure, slow the heart beat, increase the activity of smooth muscle, and the secretion of the urine, gastric juice, and milk. It probably exercises some kind of control over carbohydrate metabolism. There is reason to think that several of the ductless glands are related. Such a connection between the pituitary body and the thyroid is shown by the hypertrophy of the former and an increase in the colloid vesicles of the intermediate part after extirpation of the thyroid.

INDIAN MEDICAL GAZETTE.

January, 1915.

Emetine in Cholera, by Leonard Rogers.—The remarkable effects of emetine in amebic dysentery and its occasional value in spruelike forms of diarrhea, together with its favorable action in hemoptysis and hemorrhage from the gastrointestinal tract, led the writer to consider whether it might not be of service in checking the rapid loss of fluid in cholera. He accordingly tried it in a small series of cases with an equal number of controls, and concludes that emetine has no influence over the disease for good or bad when the hypertonic saline treatment is also employed.

Death after Salvarsan, by A. Neve.—A Kashmiri, aged twenty years, had been treated two months for neglected syphilis. Before that he had severe stomach symptoms with hematemesis. Half a gram of salvarsan was injected intravenously. That night he drank much cold water, but ate nothing, and was restless. The next morning he tried to vomit and had hiccuph. In the afternoon he died, twenty-five hours after the injection.

BOSTON MEDICAL AND SURGICAL JOURNAL.

February 18, 1915.

Treatment of Diabetes, by Frederick M. Allen.—The first step is to fast until glycosuria ceases, and for twenty-four to forty-eight hours longer. At the same time the ketonuria falls steeply, quickly approximating normal, and then the aim is to keep it down to this level. Plain fasting suffices for the purpose, but since alcohol is a food which does not produce glycosuria and is said to diminish keton-

uria, it is generally given during fasting, especially if there is danger of coma. Its use later depends on individual conditions. Alkaloids may be useful for the first few days if coma seems imminent, but are then no longer needed. The next step is to feed very slowly and cautiously, individualizing the diet. The one requirement is that the patient must remain free from both glycosuria and acidosis. Any trace of sugar is the signal for a fast day, with or without alcohol. The things to be considered in the diet are carbohydrate, protein, fat, and bulk. Frequently the first thing given after the fast is carbohydrate, 200 grams of vegetables of the five and six per cent. classes, increased day by day until a trace of glycosuria appears, which is checked by a fast day; thus we learn the carbohydrate tolerance and clear up the last trace of acidosis. After this protein is given, an egg or two the first day and nothing else. More protein, eggs or meat, is added day by day until the patient shows glycosuria or reaches a safe protein ration. The purpose is to learn the protein tolerance and to cover protein loss as quickly as possible. Fat is somewhat less urgently needed, except in very weak and emaciated patients, and can be added gradually as conditions seem to indicate. An element of bulk is necessary to give the comfortable feeling of fullness and to prevent constipation. This is the great advantage of green vegetables, which may be fed raw or cooked. When even these cannot be tolerated they may be boiled through three waters, throwing away all the water, thus removing nearly all the starch, and the patients generally take these thrice cooked vegetables gladly, without glycosuria. One result of this program is a loss of weight, but this seems to be beneficial. In subsequent treatment, the patient is welcome to gain weight up to a certain point if he can do so without glycosuria or acidosis, but any attempt to build him up with any kind or quantity of food beyond what he is able to metabolize perfectly seems to hasten a fatal result. This plan of treatment is the one now in use at the hospital of the Rockefeller Institute.

Preoperative Diagnosis of Tuberculous Mesenteric and Retroperitoneal Glands, by Edward H. Risley.—*Tabes mesenterica* is often a primary disease with sometimes a fairly distinct clinical history and signs. It most often simulates acute appendicitis, and then demands surgical intervention. In the absence of palpable glands it is impossible to make a correct preoperative diagnosis in many cases, as there is no symptom complex sufficiently distinctive. Many people harbor tuberculous mesenteric glands in various stages of activity without symptoms. The disease has two clinical types; a slowly progressing one, generally with palpable glands, and an acute fulminating type hard to differentiate from appendicitis. The prognosis in the subacute stage is good without operation; in the acute stage an exploratory laparotomy should be performed, but the glands not removed unless there are definite indications from adhesions, ulceration, or size of mass producing pain or mechanical obstruction. *Tabes mesenterica* should always be considered a possibility in children and young adults with a history of right sided abdominal pain, with or without palpable masses.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

February 13, 1915.

Pyorrhœa dentalis et alveolaris; Specific Cause and Treatment, by C. C. Bass and F. M. Johns.—This disease is practically universal (all people having it sooner or later); it leads to loss of teeth by a long suppurative process, begins in adult life, or earlier, affects primarily the dental and alveolar periosteum; whenever the periosteum is destroyed, ulceration of the soft tissue attached to it, of course, occurs. Such ulceration includes granulation, pus formation, and the usual tendency to bleed easily. The specific cause is *Entamoeba buccalis* (possibly other species also), which infects and destroys the peridental membrane, and the pyorrhea results largely from the secondary infection. It is not at all probable that entamebas can attack the normal tissue; damaged tissue seems necessary, and injury should furnish a kind of pocket or closed ulcer. The demonstrable entamebas may be destroyed by means of half a grain of emetine hydrochloride hypodermically for from three to six successive days. After the destruction of the amebas there are still lesions which will require days, weeks, or months to heal. The specific treatment must be repeated from time to time until these lesions have healed; reinfection and relapse are likely to occur. Injection of ipecac or emetine into the worst lesions ought to be of service. Rinsing the mouth thoroughly with a solution of fluidextract of ipecac is believed to protect, to some extent, against reinfection, and in some instances this actually cures the disease in its earliest stage.

Skin Grafts in the Ambulatory Treatment of Ulcers: Report of Fifty Cases, by J. S. Davis.—The ulcers treated were: After burns, eight; ulcers of leg, nine; postoperative, seventeen; traumatic, nine; miscellaneous, seven. Thirty-one of the patients were males and nineteen females; thirty-nine white and eleven colored; ages ranged from thirteen to eighty-four years. The duration of the ulcers was from a few days to twenty-five years. In the treatment, small deep grafts were used in forty-eight cases, Thiersch grafts in one, and whole thickness grafts in one. The results were as follows: Cured, thirty-six; improved, nine; unimproved, five. Of wounds which were improved, but not healed, five were of the foot and four of the leg; of the unimproved, two were on the leg, two on the foot, and one on the chest wall. In nearly all cases small deep grafts were employed, as the operative procedure is simple, and, besides, no other type of graft could have been successful on many of the wounds treated. All the grafts were autografts. In some instances in which the grafts were placed close together the ulcers were covered with epithelium within a week. When a partial grafting was done, or when only a portion of the grafts was successful, a second grafting was required to fill the areas not covered. In all instances of failure, several graftings were made, without result; several of these wounds were subsequently grafted in the hospital without success; failure seemed to be caused by the wound, rather than because the patient was not kept at rest. From the results in fifty ambulatory cases, a method of treatment seems to be

added to our armamentarium, a method hitherto used only on patients in the hospital. The successful use of grafts in the outpatient department will therefore make for hospital economy, and will also hasten the return of many patients to full wage earning capacity.

The Therapeutic Value of Organic Phosphorus Compounds, by E. K. Marshall, Jr.—The animal organism can synthesize the complex organic phosphorus from inorganic phosphates; organic phosphorus is of no more value as a food than inorganic. If the organic phosphorus compounds possess any particular efficacy, it is probably because they contain substances which are necessary in traces to normal nutrition, not because of organically bound phosphorus. These materials are undoubtedly furnished by any ordinary mixed diet; to make possible synthesis of organic phosphorus in the body, inorganic phosphates are entirely suitable.

MEDICAL RECORD.

February 13, 1915.

The Intoxication Impulse, by Alexander Lambert.—The problems are those of poisoned body and mind which must be treated medicinally and physically unpoisoned. When this is accomplished, there remain the problems of psychology; in the vast majority of cases we are dealing with sick, misunderstood personalities, distorted through many causes. Often there is an economic situation to be corrected, almost always a psychological distortion, a social readjustment that has to take place. Medicinal treatment consists in the hourly administration of a mixture of belladonna, hyoscyamus, and xanthoxylum, and at stated intervals vigorous catharsis with some form of mercurial purge. The mixture is increased or diminished as the patient shows symptoms of the full physiological effect of the belladonna. He is not cut off suddenly from his drug or alcohol, which is given at definite intervals in diminishing amount, until withdrawn altogether. He is also stimulated with various cardiac remedies as occasion may require. This treatment is usually kept up for fifty-six to eighty hours, when a dose of castor oil is finally given; the time for the use of the oil being when the patient is passing green bile. It is necessary thoroughly to eliminate these poisons. Free catharsis gets rid of the poisons at the same time belladonna and hyoscyamus, acting on the nerve endings of the secretory nerves, prevent the excess of action of these nerves following the withdrawal of the habitual narcotic drug.

What First Aid in Railway Surgery Does Not Mean, and What It Actually Does Mean, by D. McCaskey.—In first aid work it is not necessary to sacrifice everything to speed; thorough training is essential. A wound treated by any one chancing to have a handy first aid package is likely to become infected as the result of an unclean condition of the person applying the dressing; such infection may cause the injured man to lose time; a loss not only to the man, but also to the company. New standards of efficiency have arisen during the last decade; instead of speeding an injured man to the hospital, the hospital is now taken to the patient.

An Experimental Study of a New Remedial Agent, and of Its Effects, in Pulmonary Tuberculosis, by B. H. Waters.—The agent referred to

is oxy-pinene, prepared by the interaction of the vapor of oil of turpentine (pinene) and dry ozonized air, resulting from high tension electrical discharge. This substance has marked germicidal action, *in vitro*, upon *Staphylococcus pyogenes aureus*, *Bacillus anthracis*, *Bacillus typhosus*, *Bacillus coli communis*, and *Bacillus subtilis*. It also appears to destroy the tubercle bacillus in sputum; no experimental work has been done with the tubercle bacillus *in situ*. It possesses the properties of refined and purified oil of turpentine, without undesirable irritating qualities; when inhaled it does not cause irritation of the respiratory tract, renal irritation, or frontal headache. It is a valuable expectorant; it acts as a mildly stimulating diuretic, while it also seems to stimulate the appetite and digestion, and thus improves nutrition. In subacute and chronic affections of the respiratory system, it is indicated as a mild stimulant to the mucous membranes and other tissues. Its use, by inhalation, in the treatment of tuberculosis has been beneficial, not so much from its limited bactericidal action upon tubercle bacillus as by its effect upon the associated organisms and its hematinic power. When brought in contact with infected surfaces, it inhibits the growth of certain pathogenic microorganisms, and, by its hyperemic property, increases the circulation in the infected area; thus promoting the destruction of such organisms by phagocytosis.

JOURNAL OF NERVOUS AND MENTAL DISEASE.

January, 1915.

Spinal Decompression in Meningomyelitis, by Alfred S. Taylor and J. W. Stephenson.—In selected cases of meningomyelitis, where the findings indicate the segmental level, a laminectomy may be performed, the dura opened freely, and, probably, an incision made into the posterior columns of the cord, especially when the latter shows a marked infiltration and swelling. This operation, when properly performed, adds very little to the jeopardy of the patient, but seems to diminish the period of convalescence and to lead to a more nearly normal return of function in the cord than is usual in these cases when treated expectantly. Its favorable action is probably due to its permitting freer circulation with a more rapid absorption of the inflammatory exudate, while the incision of the cord facilitates drainage.

A Case of Probable Encephalitis Due to the Inhalation of the Fumes of Gasoline, by Charles S. Potts.—That the occupation of filling automobile tanks with gasoline is not without its dangers is shown by the case reported of a man, aged forty-five years, who fell unconscious while at work. Several hours later, he passed into a stuporous condition in which he remained for eleven days. When aroused he complained of intense headache. He had third nerve paralysis of the right eye that was nearly total, the only movements to be obtained being a slight contraction of the pupil to light and a slight power of raising the eyelid. No mention is made of any test of the accommodation. On the left side the pupil was smaller and reacted to light, but all movements of the eyeball were lost except inward rotation and a slight rotation outward. Associated movement of both eyes to the right was present. There was left facial palsy of the central

type and the left arm and leg were weaker than the right. Tendon reflexes were increased, asynergia was marked, and the muscle tone less on the left side. Station was poor, the tendency being to fall to the left. Gait was unsteady, of the cerebellar type, tending to go to the left, the left leg dragging slightly. Improvement gradually took place, but impairment of the left oculomotor nerve, ataxia of the left arm, and a slight weakness of the left leg persisted. The writer believes that an organic lesion was produced by the fumes of the gasoline.

Diagnostic Value of Hallucinations; Based on a Study of 500 Cases of Mental Disease, by A. Warren Stearns.—The presence of hallucinations is indispensable for the diagnosis of alcoholic hallucinosis or delirium tremens, but the type of hallucinations is not a proper criterion for differentiation between these diseases. The frequency of hallucinations in dementia præcox and their rarity in manic depressive insanity has a bearing on differential diagnosis. There are some grounds for doubting the existence of true hallucinations in manic depressive insanity. Hallucinations seem to be rare in sane persons, even the psychopathic.

JOURNAL OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

December, 1914.

Relation of Adenoids and Tonsils to Mental Deficiency, by Arthur M. Corwin.—The face typical of adenoids is elongated, narrow, with open mouth, hanging prognathous jaw, poorly developed upper maxilla, irregular, projecting teeth, nasal bridge often broad at its base though laterally pinched at the alæ; nasolabial fold nearly obliterated; inner canthus of the eye drawn down; drooping lids and bleary, lustreless eyes; the whole expression is dull and vacant. There is frequently a tendency to deafness, mastoiditis, brain abscess, to systemic disturbances causing an increased susceptibility to the acute infectious processes. Dyspepsia, embarrassed sleep, snoring, restlessness, suffocative night terrors and enuresis are sometimes manifested and interfere with the child's normal development. Eradication of diseased tonsillar tissue in the great majority of cases influences the health beneficially, stimulates the habit of study in the backward, and improves the character in the incorrigible.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, November 16, 1914.

The President, Dr. THOMAS S. SOUTHWORTH, in the Chair.

Modernized Proctology.—This paper, by Dr. SAMUEL G. GANT, was published in the JOURNAL for January 16, 1915.

Dr. JEROME M. LYNCH desired to emphasize one or two points bearing on the early diagnosis of cancer. If every patient passing blood and mucus, or suffering from diarrhea alternating with constipation, was thoroughly examined, he felt sure that they would be able to make an early diagnosis of cancer in a majority of cases. Other symptoms of

importance were the desire to move the bowels frequently, with a feeling of unfinished stool. These movements were usually explosive, and the amount of fecal matter passed was usually small and mixed with mucus or mucus and blood. In his experience, about twenty-five per cent. of patients suffering from cancer of the bowel had been previously operated on for hemorrhoids. In some cases the diagnosis was made after the patient was under the anesthetic, but in the majority it was made much later, and in a great many cases only when the patient had passed the operative stage. When the carcinoma was situated close to the anus the first symptom was the passage of a little blood. Indeed, this might be the only symptom at any time. There were other pathological conditions, such as stricture and amebic dysentery, which might give rise to similar symptoms. By examination of the feces, or even proctoscopic examination, they could easily be differentiated from cancer. The diagnosis of fissure was usually simple, but there were cases where the patient was troubled more by the secondary complication, sciatica, than by the primary lesion. Such cases were usually treated for the sciatica, when the rectal examination would have revealed the cause of the trouble, and a simple operation would have relieved it. Cryptitis was a condition which was frequently overlooked, the patient being treated usually for neuralgia, and after stretching and local applications had failed, he was usually classified as a neurasthenic. With a bent probe the ulcerated pocket could be reached easily, and the diagnosis thus be made.

Dr. FRANK C. YEMANS said that the essential principles were to find the pathological opening into the rectum and to lay open the tract. There was no danger in cutting the overlying parts, except when the fistula was tuberculous. In this event it was essential to use the actual cautery to prevent dissemination of infection, especially to the lungs. Fistulae were usually complicated, and it was advisable not to depend upon local anesthesia, except for the simple subcutaneous and submucous types. In tuberculous patients, gas and oxygen anesthesia could be used without danger. Clinically speaking, strictures were of two kinds chiefly. The first were traumatic or congenital and were rather rare. The second, inflammatory strictures, were comparatively common, and almost invariably of syphilitic origin. Syphilitic strictures were difficult to treat, and the best method was the employment of gradual dilatation by means of soft rubber (Wales's) bougies. If operation became necessary on account of obstruction, temporary colostomy was advisable, with subsequent dilatation and local treatment of the stricture. Antisyphilitic treatment, guided by the Wassermann reaction, was essential, as this would help to place the patient in better general condition. Amebic dysentery should be borne in mind, for during the past two years he had treated eleven sufferers from this infection, many of whom had never been away from New York. This disease could, therefore, no longer be considered to be a purely tropical disease. Emetine hydrochloride was specific for it, and amebiasis could be controlled or cured in ten days. This course of treatment should be repeated from three to five times at

intervals of a month to prevent recurrence. In coccygodynia the source of the pain had been originally located in the coccyx itself by Sir James Y. Simpson, who recommended subcutaneous division of all the muscles and ligaments connected with the sides and tip of the coccyx to prevent traction. Later, excision of the coccyx had been resorted to, but with unsatisfactory results, except when the bone itself was diseased or deformed by injury. Doctor Yeoman's opinion was that the affection was a neuralgia or a neuritis of the coccygeal plexus of nerves. If this was so, it ought to be possible to relieve the symptoms by injections in and about the nerves of eighty per cent. alcohol, as had proved successful in trigeminal neuralgia. He had employed the injections of alcohol successfully in seven cases of coccygodynia.

Doctor GANT emphasized diagnosis. Only today he had operated in carcinoma, and found that the patient had been operated on for piles twice during the past year. Practitioners did not make an examination of the upper rectum, even when patients were under ether. The usual history of these patients was slight constipation, pronounced constipation, constipation alternating with diarrhea, and then severe diarrhea together with pus and blood in the stools. When, with such symptoms, there was progressive loss in weight, one could scarcely make a mistake. The term dysentery should now be dropped altogether, and, looking at the matter from the etiological standpoint, they should speak of amebic or bacillary colitis, etc. Coccygodynia might sometimes be due to neuralgia, but not infrequently they had to deal with a fractured or bent coccyx, a condition easily corrected by removal of the bone. Diagnosis could not be made by the x ray alone; additional evidence was always required, though the x ray was of service as confirmatory proof.

Diagnosis of Thyroid Disease as Related to Surgical Treatment.—Dr. MARTIN B. TINKER, of Ithaca, N. Y., said that they were concerned, surgically, chiefly with three forms of thyroid disease, namely, the so called simple goitres (included with which might be placed benign cysts, adenomas, and other benign growths which caused symptoms chiefly from pressure), the various malignant growths affecting the thyroid, and the so called exophthalmic goitre in which general symptoms were present. In all there were certain related conditions and methods of examination which had to be considered. First, there was a small group of cases in which there was doubt whether the symptoms were caused by thyroid disease. Second, more numerous cases with evident thyroid disease, but in which there was doubt whether this was the chief source of trouble. In these two groups the diagnosis might rest between thyroid disease and, 1, some wasting disease, such as cancer, tuberculosis, diabetes, and sepsis from some obscure lesion; 2, cardiovascular disease; 3, some nervous disorder (most frequently neurasthenia and hysteria—less frequently, paranoia and melancholia); 4, respiratory tract disease (symptoms usually from pressure of growth deeply situated in neck or intrathoracic goitre, causing difficulty in breathing or chronic cough, diagnosed as asthma, bronchitis, etc.); 5, digestive tract disease (usually

some disorder accompanied with persistent nausea and vomiting or obstinate diarrhea); 6, diseases usually coming to the attention of specialists: *a*, laryngeal or tracheal irritation or hoarseness; weakness or loss of voice from pressure on larynx, trachea, or laryngeal nerves; *b*, pain in ear or partial deafness, possibly from pressure in the neighborhood of the Eustachian tube or tension on the stylohyoid muscles; *c*, classical eye symptoms of exophthalmic goitre or inflammation resulting from exposure of eye.

In their decision as to whether or not thyroid disease existed and whether such disease, if present, was the chief cause of the patient's discomfort, they frequently needed most careful application and wise interpretation of, 1, general physical examination; 2, laboratory tests; 3, special examination; 4, x ray examination. In the general physical examination, special attention should be given to determine the extent to which the heart was dilated, the presence and extent of arteriosclerosis, the condition of the circulation, as indicated by chart of pulse, and possibly blood pressure, carefully kept for several days, with patient resting and also after exertion (fatigue test); the character and degree of tremor, general unrest, insomnia, and other nervous symptoms; the degree of difficulty of respiration from pressure; condition of urine (albumin and casts frequently found, sugar occasionally). The laboratory tests should include red cell blood count and hemoglobin estimation, differential leucocyte count (significance of lymphocytosis), determination of coagulation time, careful chemical and microscopical examination of the urine. The eye and throat required examination in certain cases to determine refractive errors or paralysis of the vocal cords and occasionally malignancy involving the larynx. The x ray was of importance in cases of intrathoracic goitre, to determine the depth, extent, exact location, and size, and the probable safety of operative removal: in malignant disease, to determine the same factors as in intrathoracic goitre and, in addition, the location and extent of mediastinal glandular involvement; in exophthalmic goitre, to bring to light persistent thymus, to determine its location and size, with a view to its removal, as suggested by Garré and others, and a permanent record of the existence of a dilated heart was required, either by x ray plate or orthodiaphragm. By the results furnished by diagnostic tests they decided whether to advise immediate radical operation, delay of radical operation until the patient's condition could be somewhat improved by preliminary treatment, or incomplete operation, immediate or delayed. It was important that the internist, the laboratory worker, the specialist, and the radiologist should cooperate, so that the patient should receive surgical relief; such team work was indispensable. By such methods, although very imperfectly carried out, he had already been able to reduce the risk of thyroid surgery to a fraction of one per cent. Still more thorough and conscientious work was desirable and possible, and the results should correspondingly improve.

Dr. WALTER L. NILES said that his viewpoint was quite different. In looking over the records of the Cornell University Medical College Dispensary, where a large number of patients suffering with

thyroid disease had been treated during the past eight years, he had been interested to find that about one half of them gave as their chief complaint "a nervous heart," an expression no doubt originating with their physician. Where the heart was unduly irritable one should always think of hyperthyroidism. In his experience there were three conditions from which thyroid disease had to be especially differentiated: Pulmonary tuberculosis, bacterial endocarditis, and neurasthenia. In pulmonary tuberculosis the differential diagnosis was frequently difficult, and one might not be able positively to diagnose tuberculosis unless the physical signs are unequivocal. In such cases the x ray was often of great value in localizing and determining suspicious areas. Another factor which made diagnosis difficult was the great sensitiveness of patients with hyperthyroidism to tuberculin. Bacterial endocarditis was not uncommon, and was very frequently overlooked. Of special importance in diagnosis were the fine pin point petechiae, which most frequently appeared over the front and upper part of the chest: The demonstration of a bacteriemia was of great importance, and for this repeated cultures were often necessary. Bacterial endocarditis might also be mistaken for tuberculosis. Neurasthenia was simply a complex produced by a great variety of conditions, a not uncommon one being hyperthyroidism. In considering the treatment of hyperthyroidism, they found the greatest diversity of opinion, many surgeons inclining to operative interference, while most internists recommended conservative measures; the proper course must be a medium between these extremes. The Beebe serum was of service in a very large percentage of cases. Only those cases which produced severe local pressure or showed a tendency to malignant degeneration should be operated in. The most important treatment was rest, and by this means alone a great many patients would be cured. A great objection to surgical procedure was that in many cases the symptoms returned and in many others a mixed form, showing both hyperthyroidism and hypothyroidism, developed, for which little could be done, the patients usually dying in a few years.

Dr. HARRY MILES IMBODEN had seen a large number of nervous cases which appeared to be instances of exophthalmic goitre. In the diagnosis the x ray had been found very useful, especially where the goitre was intrathoracic. This would demonstrate the depth of its penetration into the chest and the relation to the trachea. It showed the pressure of the thyroid on the trachea, and it was of service, as well, in differentiating it from a persistent thymus and from aneurysm or other mediastinal growth. In the substernal or intrathoracic form of goitre, the thyroid or intrathoracic form of goitre, the thyroid was seen to be bilateral, cup shaped, and with the convexity pointing downward. A persistent thymus was triangular in outline, lower down than the thyroid, and with the base down. The appearance of an aneurysm was different from that of the thyroid. It was unilateral and the edges were sharply defined, and one could usually get pulsation.

Dr. ISAAC HARTSHORNE had been asked to say something concerning the eye symptoms in hyperthyroidism. All were familiar with the classical

signs, namely, widening of the palpebral slit, failure of the upper lid to follow the eyeball when turned downward, the lack of convergence, and the sluggish reaction of the pupils in accommodation; also the epiphora and frequent weeping. The peculiarity of the eye symptoms was that they were not present in any definite regularity or any definite association. Probably epiphora was one of the earliest symptoms, being due to pressure from the closely following exophthalmos. That they found exophthalmos in only from twenty to twenty-five per cent. of hyperthyroid cases was probably because they got the cases early in the course of the disease, and the symptoms appeared late. The cause of the exophthalmos was uncertain. Most internists held Müller's muscle, that small group of rudimentary muscle fibres spread out between the sphenomaxillary fissure and the supraorbital groove, responsible for this kind of exophthalmos. The theory of exophthalmos from irritation of Müller's muscle was hardly tenable, since, as all other muscular tissue was in them weak and deficient in tone, it was scarcely reasonable to explain any one symptom as due to irritable contraction of muscular tissue. More likely, the exophthalmos was due to an engorgement of arteries and capillaries in the orbit, back of the globe. Exophthalmos of long standing was obstinate to treatment, but was usually reduced by treatment of the goitre, medical or surgical. Doctor Tinker had reported one or two cases in which, after operation on one side of the neck, the eye on that side receded, while the other eye continued to bulge until the other side of the neck had been operated upon, when it also receded to an equal extent. Since convergence was lacking or deficient in twelve per cent., and the pupils sluggish in accommodation in fourteen per cent. of these cases, and since they recognized a normal and definite relation between convergence, pupil activity, and accommodation, they should expect to find subnormal accommodation in hyperthyroidism. So far as he knew, this matter had never been worked up, and it would make an interesting study—after careful cycloplegic refraction and also, as far as possible, eliminating presbyopia. There were usually no changes in the media, except scars from corneal ulcer, or in the fundus, other than an enlargement of the retinal arteries, which also could be seen to pulsate. Vessel pulsation in the eye was commonly venous, but in these cases was chiefly arterial. There were no signs of intracranial pressure. The inflammatory lesions appearing with exophthalmos, namely chronic conjunctivitis and corneal ulcer, were due to exposure of the globe, and should be treated in the same way as when occurring under other circumstances. Corneal ulcers could easily become infected, and proceed to perforation and panophthalmitis, with destruction of the eye; or they might injure vision simply by diffuse or multiple opacities. Cycloplegic correction of refractive error was usually of great advantage to these patients. It would be well to refract with care all hyperthyroid subjects, not with the primary idea of lessening thyroid secretion, but for the purpose of stopping the leakage of nerve force through refractive error. Osteoplastic resection of the outer wall of the orbit might be performed by either the method of Kron-

enlein or of Kocher, the latter's operation being less likely to injure the facial nerve and leaving a less noticeable scar. Simple tarsorrhaphy at the external canthus might also be done to diminish the abnormally wide palpebral slit. The fundamental significance of eye symptoms in hypothyroidism had not yet been thoroughly worked out, and that an ocular study of these cases would bring out results of interest, both to ophthalmology and to general medicine.

Dr. ALFRED E. COHN described one of Doctor Tinker's patients who had been observed by Doctor Robinson at the hospital of the Rockefeller Institute, both before and after operation. The duration of the observation after the operation was about six months. Before operation the area of cardiac dullness had extended to the right and to the left for one cm. more than after operation. Before operation the systolic blood pressure was 155, diastolic 80 mm. Hg. The pulse rate varied between 100 and 130. After the operation the blood pressure gradually fell until it reached about 120, and there it remained. The diastolic pressure was unchanged at 80. The pulse rate also fell, and varied between 80 and 95. Electrocardiograms were made both before and after operation. These yielded no information which could be regarded as useful. A larger experience might, however, be of great interest. Doctor Robinson, in order to reduce the pulse rate in patients suffering from exophthalmic goitre, had investigated the action of digitalis and of tincture of aconite. The doses of aconite which he used were at first those usually recommended, but later he used doses far in excess of these. It might be said, in general, that these drugs failed. Experiments were then conducted with the tincture of aconite in order to test its potency. These experiments would later be reported. Dr. James Mackenzie believes that the rapid rate of the heart in exophthalmic goitre depended upon the fact that the area of the peripheral circulation was enormously dilated. It was apparent, if this theory was correct, that an agent must be found which would aid in reducing the area of the peripheral bloodvessels to normal limits. Should that be accomplished, one might expect the rate of the heart to become reduced.

Dr. FRANK C. RAYNOR could not say that he had observed any relation between thyroid disease and affections of the throat. While many cases of thyroid disease were associated with disease of the lymphoid tissue in the pharynx, fully as many were not. In one case of enlarged thyroid with pronounced tachycardia, in a girl of sixteen years, great improvement had followed the removal of adenoids and hypertrophied tonsils. He had also seen but few cases in which pressure symptoms had resulted from the growth. In one case there had been considerable mucus in the throat, but this he considered secondary to the circulatory disturbance. As to the use of drugs in goitre, the red iodide of mercury locally, and arsenic bromide internally, had seemed to him to be of some service. At a recent meeting in Brooklyn, quinine hydrobromide had been highly spoken of, but he had not yet had the opportunity of giving it a trial.

Letters to the Editors.

AN UNAUTHORIZED PUBLICATION.

NEW YORK, February 20, 1915.

To the Editors:

In view of the statement relating to the treatment of cancer appearing in the *New York Times* for February 19, 1915, will you be kind enough to give a prominent place to the following communication.

On December 15, 1914, the Trustees of the General Memorial Hospital of this city adopted the following resolution, a copy of which was sent to each of its members and to the members of its medical board.

"At a meeting of the Board of Managers held on December 15, 1914, the action of the medical board in appointing an editorial committee consisting of Doctors Ewing, Coley, and Weil, to look over and pass upon all articles to be published from the wards of the hospital (research and clinical) was, upon recommendation of the executive committee, approved, and it was directed that formal notice be sent to all members of the Board of Managers and the Consulting Staff, informing them of the existence and duties of the editorial committee.

"The appointment of the editorial committee was in line with the policy adopted at a meeting of the executive committee held May 3, 1914, when the following resolutions were adopted:

"No publication relating to the medical, surgical, or research work done in the hospital shall be made public without the approval and consent of the medical board."

This resolution is presented here as a reply to a communication which appeared in the *Times* for February 19, 1915, dealing with the investigation of cancer as carried on at the General Memorial Hospital.

An inquiry shows that neither the medical board, nor any member thereof, has made the statements concerning the treatment of cancer contained in the article. As dean of the Medical College of Cornell University, which institution has been entrusted by the Board of Managers of the General Memorial Hospital, with the investigation of cancer which is there being carried on I must enter a denial of the claims made in this article for any of the agents presented therein. This I here do. W. M. POLK, Dean.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Medical Dictionary for Nurses. Giving the Definition, Pronunciation, and Derivation of Terms Used in Medicine, together with Supplementary Tables of Weights, Measures, Chemical Symbols, etc., Arranged with Special Reference to Use by Nurses. By AMY E. POPE, Graduate of the School of Nursing of the Presbyterian Hospital, in the City of New York; Special Diploma in Education from Teachers' College, Columbia University, New York; Formerly Instructor in the School of Nursing, Presbyterian Hospital; Instructor in School of Nursing, St. Luke's Hospital, San Francisco, Cal. Author of *Essentials of Dietetics*, *Quiz Book of Nursing*, *Anatomy and Physiology for Nurses*, with Anna Maxwell, *Practical Nursing*. New York and London: The Knickerbocker Press, 1914. Pp. 288. (Price, \$1.)

Garbed in blue and white, and of the size and style of a late novel instead of the ponderous, cap-and-gown aspect of the ordinary medical dictionary, this volume appeared an unusually attractive visitor. The book introduced itself as giving the definition, pronunciation, and derivation of terms used in medicine, together with supplementary tables of weights, measures, chemical symbols, etc. Glancing over the pages, we discovered at once that the vocabulary of medicine had been abridged to an unusual extent. For example, instead of the approximately two hundred uses of *neur*, found in Stedman or Gould, the dictionary for

nurses included but seventeen. Recalling the "student's dictionary" of school days, which with exasperating perseverance omitted just the word we were looking for, we decided to test the efficiency of this abridged medical text. Opening at random one of the medical journals at hand (NEW YORK MEDICAL JOURNAL, C, page 851), we discovered in a single column of reading matter the omission from the dictionary of neurotome, saphenous (nerve), microcecum, volvulus, ileocecal, and psosa. These words, not altogether uncommon in medical writings, the author evidently considers outside the range of the nurse's investigation.

Two recent New York State examinations for nurses applying for registration contained the words perineorrhaphy and cephalhematoma. The nurse preparing for the examination would have found neither word in Miss Pope's dictionary. The student nurse will also look in vain for such words as anaphylaxis, anoci association, hydrotherapy, hypertension, and hypotension, all of which are found in recent issues of a magazine for nurses.

An attempt is made to counterbalance the omission of so many words by including a table of medical stems and prefixes, giving origin, derivation, and meaning. This table, very well prepared, would be a valuable aid to a nurse having some acquaintance with the uses of Latin and Greek, but we question the ability of the nurse who qualified for training with one year in high school, to guess with reasonable accuracy at the meaning of a combination of Latin or Greek roots. The nurse who would read the theoretical side of her case from textbook or medical journal cannot dispense with an unabridged list of definitions.

Such terms as are included in this dictionary, however, are defined with clearness and simplicity, and the tables at the end contain information for everyday use. With such admirable medical dictionaries available to the nurse as the works by Gould and Scott, Stedman, and Dorland—dictionaries which the nurse can secure from pocket size to the unabridged editions—this latter dictionary for nurses was a needless undertaking; nor will it ever be placed in this group of authoritative works.

Malaria. Lessons on Its Cause and Prevention. For Use in Schools. United States Public Health Service. RUPERT BLUE, Surgeon General. By H. R. CARTER, Senior Surgeon, United States Public Health Service. Supplement No. 18 to the Public Health Reports. July 17, 1914. Washington: Government Printing Office, 1914. Pp. 20.

This brief pamphlet has been arranged in the form of questions and answers dealing with the subject of malaria. Although intended chiefly for the pupils, yet those points necessary in order that the teacher shall have a clear understanding have been included. The booklet gives clearly and briefly the essential details, and by means of plates illustrates the characteristics of the malarial mosquitoes and the infecting organisms. A widespread use of these lessons in the public and private schools would undoubtedly do much toward eradicating the disease.

Verhandlungen des Vereins Deutscher Laryngologen, 1914. Herausgegeben im Auftrage des Vereins vom Schriftführer Prof. Dr. OTTO KAHLER, Freiburg i. Br. Mit 5 Tafeln und 11 Abbildungen im Text. Würzburg: Verlag von Curt Kabitzsch, 1914. Pp. 247-473.

The transactions of the German Laryngological Society, which is little known outside of Germany, are this year full of interest. The society convened under the presidency of Doctor Spies, now professor at the University of Frankfurt on the Main, which was opened only last October without ceremony or festivity.

It may be of interest to American readers to learn that a large majority of the men present were in favor of combining the section on laryngology with that on otology at the next International Medical Congress to be held at Munich in 1917. In the volume before us many new instruments and devices are published, among which may be mentioned another modification of the suspension apparatus by W. Albrecht, of Berlin. Albrecht, who has done good work in suspension laryngoscopy, now recommends counterpressure on the outside of the larynx by means of some device attached to his suspension apparatus, which is different from that introduced by Brueningers. By these the anterior commissure is brought into better view, which is of great importance in any operative procedure in that

region. Besides, there is a new headrest, which may or may not be used for the patient; the indications are not clearly given in the paper. Further advantages are, according to Albrecht, that his modification is easily applied and that it can be used without the scopolamine anesthesia. In that respect we all are aware of the fact that Freudenthal, of New York, who introduced the method into this country, never used any general anesthetic and gets along very well with local anesthesia alone. Of great value are the papers on the treatment of inoperable and operable malignant tumors of the upper air tract, the use of radium and mesothorium, the intranasal operation for chronic sinusitis frontalis, etc. In short, this little volume is full of interest to every practitioner, and especially to the laryngologist.

The Prophylaxis of Malaria with Special Reference to the Military Service. Bulletin No. 6. War Department: Office of the Surgeon General. By CHARLES F. CRAIG, Captain, Medical Corps, United States Army. Published by Authority of the Act of Congress Approved August 1, 1914, and with the Approval of the Secretary of War, for the Information of Medical Officers. Washington: Government Printing Office, 1914. Pp. 115.

In Bulletin No. 6 of the War Department, Craig has given to the profession a very valuable monograph. In the introduction he shows that in the Canal Zone during the year 1906, nearly seven per cent. of the entire working force on the canal entered the hospitals each month suffering from malarial infections. In 1912 less than one per cent. each month entered the hospitals. In the army the rate, including troops both at home and abroad, has been reduced from 365.39 per 1,000 in 1901 to 24.75 per 1,000 in 1913.

The first chapter of the bulletin is devoted to detailed descriptions and classifications of the malarial organisms, while chapter two takes up at length the malarial mosquitoes. The subsequent chapters deal with the various phases of prophylaxis, as the destruction of the mosquitoes, the protection of men from bites, and the use of quinine. The final chapter gives the application of these prophylactic methods to the military service. This bulletin should be in the hands of all who, directly or indirectly, are concerned with the problems of malaria and mosquitoes.

Transactions of the American Gynecological Society for the Year 1914. Volume 39. Philadelphia: William J. Dornan, 1914. Pp. liv-520.

This volume consists of the papers read before the society at its thirty-ninth annual meeting. They cover many phases of gynecology and obstetrics, but no particular topic occupies a predominant position. One of the most interesting contributions is the address of the president, J. Whitridge Williams, in which he reviews the advances made in gynecological practice and the part played by the society. By way of contrast to present conditions, mention is made of the death of forty-five out of sixty women delivered in one month in Bellevue. Of the remaining twenty odd papers, that of Dickinson on the new efficiency systems is valuable and contains much food for thought.

Operative Surgery. The Head and Neck, the Thorax and the Abdomen. By EDWARD H. TAYLOR, M. D., B. S. (Dub. Univ.), F. R. C. S. I., Professor of Surgery in the University of Dublin, Surgeon to Sir Patrick Dun's Hospital. Illustrated with 300 Figures from Original Drawings Many Printed in Colors. New York: William Wood & Co., 1914. Pp. xi-524. (Price, \$9.)

The author in confining his subject matter to the head, neck, thorax, and abdomen has departed from the usual practice in works on operative surgery. Furthermore, he has included much in the way of description of normal and pathological anatomy as well as preoperative and post-operative treatment not usually found in an operative surgery. These changes have manifest advantages in the way of added detail and completeness, but make the text somewhat too bulky for one seeking a description of the technic of a particular operation. The book is therefore suited more to students and beginners in surgery than to the surgeon. The operative procedures described follow the practice of the best surgeons in all countries including the author himself, and one gets the impression that the book is completely up to date. The chapters on abdominal surgery are particularly well written and illustrated. Every

step in the technic from abdominal incision to suture of the skin is given most systematically and minutely. The author shows throughout his familiarity with teaching and the needs of the student. Furthermore the work abounds with little "points" in technic and aftertreatment which have proved of value to the author, as a practical surgeon and will prove helpful to the beginner in surgery. The book is well adapted to American readers, as it is entirely free from local prejudice and favoritism and represents the best practice throughout the surgical world.

Augenverletzungen im Kriege und ihre Behandlung. Mit einem Abriss über die Diagnose und Behandlung des Trachoms. Von Professor Dr. C. ADAM, Priv.-Doz. für Augenheilkunde in Berlin. Während des II. Balkankrieges dirigierender Arzt der Augenabteilung des Militärhospitals in Belgrad. Mit 46 Abbildungen. Berlin und Wien: Urban & Schwarzenberg, 1914. Pp. 96. (Price, 2.50 Marks.)

This little book has been prepared by the author, not so much for specialists as for military surgeons, and therefore devotes some space to methods of examination and diagnosis. The mechanics of injuries of the eye by modern missiles, such as bullets, pieces of exploded shells, and shrapnel, are studied with due regard to the direction from which the missile comes. Wounds of the various parts of the eye are described and some suggestions given as to treatment. The author was in charge of the eye department of the military hospital in Belgrade during the Balkan war. He discusses very briefly whether trephining should always be performed in cases of choked disc, and the diagnosis and treatment of trachoma, a disease that calls for much attention from the military surgeon.

Interclinical Notes.

We are accustomed to learning how cases die—and no doubt are buried; for cases and patients apparently exist in an inextricable metonymy in the minds of our hasty professional writers. A more startling figure of speech occurred recently in one of our contemporaries, usually edited with care, in which the writer, referring to the results of antityphoid treatment, stated that "there were 22 deaths, none of whom had been inoculated."

* * *

Another remarkable statement from the journal just alluded to, is that "battles on the sea are (yet) better calculated to shatter the nerves of the participants." We do not doubt that these battles are likely to have the effect described, but we cannot believe that it is for that purpose that they have been *calculated*. The calculation is to shatter the enemy's ships.

* * *

An advertising writer beginning his description of a well known book, makes the astonishing assertion that between preoperative treatment and postoperative treatment lies the "borderland of surgery." We do not see what can lie between preoperative and postoperative except the operation itself, which we take to be the actual and unmistakable territory of surgery and not at all a borderland. Perhaps the youthful blurbist meant to say "between operative and nonoperative."

* * *

Our colleagues who attend the next meeting of the A. M. A. at San Francisco, have enviable luck. Probably there never has been so complete, so wonderful an exposition as the Panama-Pacific, amid whose beauties the meeting will take place. An illustrated account of some of the architecture appears in the *Review of Reviews* for February, written by Ernest Knauff, an account which fills the reader with a wild longing to make any sacrifice in order to spend a week or two in this fairyland, under the balmy sky of California and surrounded by its magnificent flora.

* * *

Talking of diet, although we have not been doing so recently, according to *Leslie's* for February 11th, the Canadian soldiers are "fed up" on England, by which bit of slang they signify that the are tired of drilling in sloppy

Salisbury and would fain take a shot at the enemy from a convenient Belgian or Norman trench. That this war has led the participants into strange and unexpected places is shown by a picture in *Leslie's* of the survivors of the *Emden* being nursed back to health in a hospital in Colombo, Ceylon.

* * *

A physician writing to the *Lancet* for January 30, 1915, says of the works of Anatole France that they contain descriptions "clothed in beautiful, but none the less smutty language." We do not see how even this typically British point of view can reconcile the two epithets.

* * *

The *Review of Reviews* for February is practically *bella, horrida bella!* Even Mr. Iglehart calls his article The War against the Saloon. There are descriptions, however, of many beautiful aspects of the Panama Exposition, a discussion of progressivism, the initiative and referendum, a talk about Hungarian and Slav music and the Irish theatre in America, and a careful and impartial presentation of the political problems which have assailed this administration. The pictures are numerous and well chosen.

Meetings of Local Medical Societies.

MONDAY, March 1st.—Clinical Society of New York Throat, Nose, and Lung Hospital; German Medical Society of the City of New York; Utica Medical Library Association; Niagara Falls Academy of Medicine; Brooklyn Hospital Club; Hornell Medical and Surgical Association; Clinical Society of the New York Polyclinic Medical School and Hospital; West Side Physicians' Economic League.

TUESDAY, March 2d.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Amsterdam City Medical Society; Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital, New York; Syracuse Academy of Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Medical Association of Troy and Vicinity; Medical Society of the County of Yates; Medical Society of the County of Tioga.

WEDNESDAY, March 3d.—Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association; Bronx Medical Association; Elmira Academy of Medicine; Psychiatric Society of New York; Society of Alumni of St. John's Hospital, Brooklyn; Long Island Society of Anesthetists.

THURSDAY, March 4th.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva Medical Society; Glens Falls Medical and Surgical Society.

FRIDAY, March 5th.—New York Academy of Medicine (Section in Surgery); New Utrecht Medical Society; New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society.

SATURDAY, March 6th.—Benjamin Rush Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending February 17, 1915:

Carter, H. R., Senior Surgeon. Detailed to present three lectures to student officers at the Hygienic Laboratory, Washington, D. C., upon the subjects of

yellow fever and malaria. **DeValin**, Hugh, Passed Assistant Surgeon. Relieved from duty in plague eradication measures at New Orleans, La., and directed to proceed to Hongkong, China, for duty in the office of the American Consulate. **Glennan**, A. H., Assistant Surgeon General. Designated to confer with the board for the revision of Coast Guard regulations for the purpose of considering questions concerning the physical examination of candidates for entrance into the Coast Guard, and such other matters involving the cooperation of the Public Health Service with the Coast Guard. **Guiteras**, G. M., Surgeon. Directed to proceed to Havana, Cuba, for the investigation of a reported outbreak of plague. **Homon**, H. B., Sanitary Chemist. Directed to proceed to Noblesville, Indiana, for the purpose of supervising investigations of strawboard waste disposal. **Korn**, W. A., Surgeon. Relieved from duty at Hongkong, China, and ordered to proceed to San Francisco, Cal., and report arrival by wire to the bureau. **Murlin**, J. H., Biochemist. Directed to proceed to Spartanburg, S. C., for duty in pellagra investigations. **Phelps**, E. B., Professor. Directed to proceed to Noblesville, Indiana, to inspect strawboard waste disposal plant and to Indianapolis for consultation with the State Board of Health; also to attend meeting of the Indiana Sanitary and Water Supply Association at Indianapolis, February 23 and 24, 1915. **Ridlon**, J. R., Passed Assistant Surgeon. Directed to proceed to Moultrie, Ga., to secure samples of the water which is taken there by common carriers for the use of passengers, for bacteriological examination. **Smith**, F. C., Passed Assistant Surgeon. Granted three days' leave of absence from February 16, 1915, under paragraph 195, Service Regulations. **Spratt**, R. D., Passed Assistant Surgeon. Placed on waiting orders, effective February 11, 1915. **Stimpson**, W. G., Assistant Surgeon General. Designated to confer with the board for the revision of Coast Guard regulations for the purpose of considering questions concerning the physical examination of candidates for entrance into the Coast Guard and such other matters involving the cooperation of the Public Health Service with the Coast Guard. **Stoner**, J. B., Surgeon. Granted fourteen days' leave of absence from February 13, 1915. **Wertenbaker**, C. P., Surgeon. Granted one month's leave of absence, on account of sickness from February 10, 1915. **Williams**, C. L., Assistant Surgeon. Relieved from duty in plague eradication measure in New Orleans, La., and directed to proceed to Chicago, Ill., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending February 20, 1915:

Bourke, James, Captain, Medical Corps. Relieved from duty at the port of embarkation, Galveston, Texas, and assigned with Field Hospital No. 3, Galveston, Texas. **Callender**, George R., First Lieutenant, Medical Corps. Granted two months' leave of absence. **Little**, William L., Major, Medical Corps. Instead of proceeding to Texas City, Texas, as previously ordered, will proceed to Fort Monroe, Virginia, for duty, Coast Defense, Chesapeake Bay. **Parce**, Alexander D., Captain, Medical Corps. Granted one month's leave of absence. **Sanford**, Joseph L., First Lieutenant, Medical Reserve Corps. Ordered to active duty at station, Fort Oglethorpe, Georgia.

Births, Marriages, and Deaths.

Married.

Ackerman-Ruck.—In New York, on Wednesday, November 11th, Dr. S. H. Ackerman, of Brooklyn, and Miss Marie Ruck. **Gildea-Thompson**.—In Pittston, Pa., on Wednesday, February 10th, Dr. J. J. Gildea and

Miss Kathleen C. Thompson. **Houghton-Duane**.—In Boston, Mass., on Wednesday, January 27th, Dr. Richard Henry Houghton and Miss Mary Louise Duane. **McLean-Hutchinson**.—In North Chicago, Ill., on Tuesday, February 2d, Dr. C. C. McLean and Miss Jane Hutchinson. **Ott-Butters**.—In Sheboygan, Wis., on Wednesday, February 3d, Dr. Henry Alexander Ott, of Beechwood, and Miss Alda M. Butters. **Parsons-Nusbaumer**.—In Pontiac, Mich., on Monday, February 1st, Dr. Allan W. Parsons and Miss E. M. Nusbaumer. **Pigot-Lowry**.—In Butte, Mont., on Wednesday, February 10th, Dr. Creswell T. Pigot, of Roundup, and Miss Alice Lowry. **Ryan-Hurlbutt**.—In Oconomowoc, Wis., on Thursday, February 4th, Dr. John J. Ryan and Miss Edwina Hurlbutt. **Satterlee-Powell**.—In New York, on Tuesday, February 9th, Dr. George Reese Satterlee and Miss Mabel Alger Powell. **Smith-Ripley**.—In Oak Park, Ill., on Monday, January 25th, Dr. Robert Holbrook Smith and Miss Anne Robinson Ripley. **Stern-Berton**.—In Brooklyn Manor, L. I., on Monday, February 1st, Dr. William E. Stern and Miss Bertha A. Berton.

Died.

Allen.—In Chambersburg, Pa., on Wednesday, February 10th, Dr. Paul P. Allen, aged twenty-nine years. **Breakey**.—In Ann Arbor, Mich., on Tuesday, February 16th, Dr. William F. Breakey, aged seventy-nine years. **Campbell**.—In Philadelphia, on Friday, February 12th, Dr. George M. Campbell, aged fifty-six years. **Chambers**.—In Florence, Wis., on Monday, February 8th, Dr. Harry Paul Chambers. **Chambers**.—In Oketo, Kan., on Thursday, February 4th, Dr. J. W. Chambers, aged sixty-four years. **Clark**.—In Syracuse, N. Y., on Saturday, February 13th, Dr. Edward Daniel Clark, of Buffalo, N. Y., aged twenty-eight years. **Cook**.—In Valemevo, Servia, on Wednesday, February 10th, Dr. Albert Samuel Cook. **Desrosiers**.—In Montreal, Que., on Sunday, February 7th, Dr. Amedee Desrosiers. **Donoghue**.—In Rochester, N. Y., on Sunday, February 14th, Dr. James K. Donoghue, aged twenty-eight years. **Erdman**.—In New Richmond, Ohio, on Monday, February 8th, Dr. R. F. Erdman, aged sixty-eight years. **Gail**.—In East Aurora, N. Y., on Saturday, February 6th, Dr. William H. Gail, aged seventy-five years. **Gibney**.—In New York, on Wednesday, February 17th, Dr. Homer Gibney, aged fifty-five years. **Harper**.—In New Orleans, La., on Thursday, February 4th, Dr. Edward Harper, aged fifty-one years. **Haven**.—In Glenburnie, Mass., on Friday, February 19th, Dr. Henry C. Haven, aged sixty years. **Hustace**.—In New York, on Wednesday, February 17th, Dr. Francis Hustace, aged sixty-three years. **Kilbourne**.—In Utica, N. Y., on Tuesday, February 16th, Dr. J. Judson Giles Kilbourne, aged fifty-five years. **Martin**.—In Ashland, Ky., on Wednesday, February 3d, Dr. John W. Martin, aged eighty-seven years. **Merrill**.—In Somerville, N. J., on Friday, February 12th, Dr. William H. Merrill, aged seventy-three years. **Meyers**.—In Bridgeport, Conn., on Thursday, February 11th, Dr. Amelia M. Meyers, formerly of New York, aged eighty-four years. **Nichols**.—In Wethersfield Springs, N. Y., on Saturday, February 6th, Dr. H. F. Nichols, aged sixty-eight years. **Pierce**.—In West Newbury, Mass., on Tuesday, February 9th, Dr. Amos H. Pierce, aged fifty-six years. **Rowe**.—In St. James, Minn., on Thursday, February 4th, Dr. W. H. Rowe, Sr., aged fifty-six years. **Simmons**.—In Montgomery, Ala., on Thursday, February 11th, Dr. Alpheus B. Simmons, aged fifty-one years. **Simpson**.—In Shreveport, La., on Thursday, February 11th, Dr. James F. Simpson, of Athens, La. **Skilling**.—In Lonaconing, Md., on Tuesday, February 9th, Dr. John B. Skilling, aged eighty-eight years. **Stark**.—In Woodhaven, N. Y., on Thursday, February 11th, Dr. Charles J. Stark, aged thirty-five years. **Stevens**.—In Oxford, Me., on Friday, February 5th, Dr. Orin Stevens, aged eighty-nine years. **Stillians**.—In Redlands, Cal., on Saturday, February 13th, Dr. Daniel Clark Stillians, aged seventy-four years. **Watts**.—In Wakefield, Mass., on Wednesday, February 17th, Dr. Joseph Palmer Watts, aged thirty-two years.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843

VOL. CI, No. 10.

NEW YORK, SATURDAY, MARCH 6, 1915.

WHOLE No. 1892.

Original Communications.

SPINAL ANESTHESIA IN GYNECOLOGY*

By H. J. BOLDT,

New York.

It is my purpose to limit myself to a few practical remarks from my personal point of view, and to make these briefly. The subject of local anesthesia for gynecological operations, I feel constrained to omit, in that I do not consider my experience yet large enough to speak authoritatively on that phase of the subject. For general surgical operations, however, I know that, so far as I have been able to observe, there are few operations that need be excluded. Particularly at the Imperial surgical clinic of Bier, at Berlin, was this made clear to me. Extensive thyroidectomies, resections of large joints, etc., are done daily at that clinic, under novocaine anesthesia. Baum has rendered to the medical profession and to suffering humanity an invaluable service by his practical work and writings in this field of endeavor.

Medullary or spinal anesthesia has many adherents, but it has still more opponents; and the reason I shall make obvious. Cocaine was the first drug used for this purpose. I employed it for a short time in cases where I considered inhalation anesthesia hazardous, but because of the frequently reported fatalities, I discontinued it. Stovaine and tropacocaine I never made use of; for while these drugs are less dangerous than cocaine, yet fatal results often followed their employment. In the thousands of cases of patients upon whom novocaine was used, however, I failed to find a single recorded fatality attributable directly or indirectly to the drug. For this reason, I again began the use of spinal anesthesia.

FAILURES TO BRING ABOUT ANESTHESIA.

The worst that I can say for medullary anesthesia is that it may occasionally fail, so that inhalation anesthesia must be resorted to. Nevertheless, in my own practice, I have had but one complete failure and but few partial failures, making in these latter a small quantity of ether necessary. Concerning the complete failure, I may add that in the preliminary narcosis, though a total of one half grain of morphine and one sixtieth grain of scopolamine had been injected, they failed utterly in bringing about a physiological effect. There was no fault in the technic of the spinal puncture; the

spinal fluid came out in a strong jet, and two c. c. of a ten per cent. solution of novocaine was injected.

UNDESIRABLE EFFECTS.

These are limited, so far as my observations go, to occasional more or less severe headaches, which sometimes continue for several days. They are usually relieved, however, by the administration of the combined bromides; a total dose of two grams of the combination of potassium, sodium, and ammonium bromide in a glass of water at intervals of four hours, until three doses have been given. In some instances, pyramidon has given prompt relief. When the headache is very severe and very obstinate, despite the remedies used, puncturing the spinal canal and letting off about two c. c. of fluid is said to bring about prompt relief. But I have no patient in whom it was necessary to resort to re-puncture. My patients with headaches have decreased to an almost negligible number, since my practice is to allow about as much fluid to flow off as injected. Another untoward symptom occasionally met with is nausea during operation. Sometimes this is associated with vomiting, which makes it very disagreeable, particularly in abdominal operations, but, on the whole, the undesirable symptoms occur so seldom that I cannot regard them as a deterrent objection to spinal anesthesia.

The occasional paralysis of one or both extremities, a few instances of which have been reported, I believe to be due entirely to faulty technic. I have seen none. Where such paralysis has occurred it was only temporary.

The last objection that may be raised against spinal anesthesia, and in my opinion the most valid, is that the patient is conscious of what is going on and can hear everything that is said. This, then, brings us to the question of preliminary narcosis, which I consider as important as the spinal injection.

PRELIMINARY NARCOSIS.

I should not care to subject any patient to spinal anesthesia without preliminary narcosis. The narcosis should be deep enough to give us reason to believe that the patient will be oblivious to surroundings. The preliminary narcotic—hydrochloride of scopolamine and morphine—should be prepared freshly, and I prefer to give it in divided doses, because owing to occasional susceptibility to the drug, a third dose may prove unnecessary and be omitted. The drugs, hydrochloride of scopolamine one sixtieth of a grain, and morphine three eighths of a grain (until a few weeks ago, only one

*Read before the Clinical Congress for the Study of Local, Spinal, and Scopolamine-Morphine Anesthesia, Chicago, January 26, 1915.

quarter grain of morphine was included), are put into separate powders. Just before the first dose is to be given, they are dissolved in two c. c. of boiling water. One third of the mixture is injected two and a half hours before operation, and one third at the end of an hour. When an hour later, the third dose is due, it can be ascertained whether the patient is sufficiently under the effect of the narcotic to make a good subject for spinal anesthesia. That is, whether he is so lost to surroundings as to be heedless of what is going on, and likely to sleep throughout the operation or the greater part of it. I have no set dose—it depends entirely upon circumstances. In very heavy patients I do not hesitate to give one sixth grain morphine for each of the first two doses, and one quarter grain morphine for the last dose, in conjunction with scopolamine, if the patient at the time that the third dose is due is still awake. I take the view that it is cruel to subject the patient to spinal anesthesia without preliminary narcosis; and I believe that this may be one of the objections which very many entertain against medullary narcosis. The same holds good for local anesthesia. The preliminary narcosis that I have mentioned in the foregoing in connection with spinal anesthesia should be employed.

INDICATIONS FOR SPINAL ANESTHESIA.

If one should ask me, Is spinal anesthesia indicated as frequently as I make use of it? I should unhesitatingly answer, No. Indeed, as a matter of fact, it is indicated in comparatively few cases. For those patients in whom inhalation anesthesia is contraindicated because of some organic defect of their system, or because of exceptional obesity—and we know that exceptionally obese patients do not bear an anesthetic as well as the ordinary class of patients, particularly if they have been accustomed to the use of alcohol—we can conscientiously say that either spinal or local anesthesia is *the* method of anesthesia. How comparatively seldom such cases occur, we all know. We also know that ether, in conjunction with nitrous oxide and oxygen, is a comparatively safe anesthetic. I believe it to be about as safe as novocaine. Therefore, it stands to reason that if we also consider the objectionable features of novocaine anesthesia, there is a good reason for so many to decline to make use of it, in spite of its being far more economical than any form of inhalation anesthesia.

Still, there is another condition that I may cite in favor of novocaine anesthesia in conjunction with the preliminary narcosis; in case of necessity we can dispense with one assistant; which is of paramount importance, particularly in country practice, or in some instances of emergency.

Some may object to spinal anesthesia because of supposed risk incurred when the spinal puncture is made, but I can give positive assurance that there is no reason for apprehension if proper technic is used and thorough aseptic precautions are taken. Of course, we know that no matter how trifling an intervention may be, there is risk if it is not properly made. All things considered, however, and basing the conclusion on my personal experience, I unhesitatingly say that I should sooner give up the use of the scalpel in surgery than give up spinal and local anesthe-

sia in connection with preliminary narcosis by morphine and hydrochloride of scopolamine.

I have found that from 1.5 to two c. c. of a ten per cent. solution of novocaine is the most reliable strength; although a five per cent. solution is sufficiently strong for most cases. Further, it is better to prepare the solution freshly rather than use ampoule solutions.

In operations of long duration, two c. c. are used. In those of short duration 1.5 c.c. is sufficient.

39 EAST SIXTY-FIRST STREET.

SYMPTOMS OF DISEASE OF THE PITUITARY BODY.*

By JOHN H. W. RHEIN, M. D.,
Philadelphia,

Professor of Diseases of the Mind and Nervous System, Polytechnic
and College for Graduates in Medicine; Neurologist,
Howard Hospital; etc.

The symptoms of diseases of the pituitary body are interesting to the neurologist chiefly because this organ is connected with the brain and produces symptoms referable to the nervous system by reason of pressure upon the neighboring parts, rather than on account of nervous symptoms which disorders of the gland itself may cause. The reason of this becomes apparent when we consider the anatomy and physiology of the organ. As is well known, the pituitary body is divided into two parts, the anterior lobe and the posterior lobe. The anterior lobe is looked upon as having the characteristics of a gland of internal secretion and is made up of cells which are either chromophiles or chromophobes. The former are either acidophilic or basophilic as decided by their staining properties. According to some observers these three types of cells are intermediary forms, merging one into the other. The posterior lobe is composed of the neurohypophysis and the pars intermedia and is covered with an epithelial layer. The neurohypophysis or pars nervosa consists of neuroglia tissue in which spaces are found, filled with a hyaline substance. The epithelial cells of the pars intermedia form spaces which contain a colloid substance and this, according to some observers, discharges into the neurohypophysis. It is believed that the posterior lobe also distills a substance into the cerebrospinal fluid.

Intravenous injections of the pituitary body increase the blood pressure, and this rise is due to some property of the posterior lobe. It is also stated that there is a stimulation of the epithelium giving rise to diuresis, and uterine, vesical, and intestinal contractions. There is at the same time a lowered tolerance for carbohydrate assimilation.

The anterior lobe is believed to be inactive. Cushing found no special changes after repeated injections of the anterior lobe, and his experience with feeding dogs over a long period with extracts of the gland was negative.

Experimentally, partial removal of the hypophysis caused in dogs adiposity, lowered bodily temperature, thickening and dryness of the skin, retardation in growth, mental dullness and irritability, with

*Read before the Polytechnic Club, December 11, 1914.

increased carbohydrate tolerance. Marked histological changes in all of the other ductless glands were also observed.

Experimentally, removal of all but a small portion of the anterior part of the hypophysis in adult dogs caused adiposity, increased sugar tolerance, lowered bodily temperature, and reversible sexual changes. In puppies a similar condition was caused, together with sexual infantilism with skeletal and psychic changes constituting the Fröhlich type (Cushing).

Typical examples of hyperpituitarism or hypopituitarism are rare, one condition overlapping the other, giving rise to a syndrome which is best described as dyspituitarism. Cushing classifies dyspituitarism into five groups, namely, 1. Cases of dyspituitarism in which not only the signs indicating distortion of neighboring structures, but also the symptoms betraying the effects of altered glandular activity are outspoken. 2. Cases in which the neighborhood manifestations are pronounced, but the glandular symptoms are absent or inconspicuous. 3. Cases in which neighborhood manifestations are absent or inconspicuous, though glandular symptoms are pronounced and unmistakable. 4. Cases in which obvious distant cerebral lesions are accompanied by symptomatic indications of secondary pituitary involvement. 5. Cases with a pluriglandular syndrome in which the functional disturbances on the part of the hypophysis are merely one, and not a predominant feature of a general involvement of the ductless glands.

Aside from the characteristic conditions which are the result of a disordered secretion of the gland itself, we must consider other symptoms. The hypophysis may be the seat of lesions causing tumors which may be either sarcoma, which is the most frequent lesion of the hypophysis, or simple hypoplasia, adenoma, epithelioma, gumma, or tuberculosis. The tumor under these conditions may vary in size and in some instances may become as large as one's fist, causing pressure symptoms.

The usual symptoms of brain tumor, namely, headaches, vomiting, vertigo, convulsions, and optic neuritis, are not seen in a characteristic manner in tumors of the pituitary body. Headache has been found, however, by many observers in seventy to ninety per cent. of the cases. It may be either frontal, parietal, occipital, vertical, or, finally, general.

In a study of 169 cases, vertigo was mentioned in ten per cent. Roth, however, in a statistical study, found vertigo present in about thirty per cent. of the cases. Vomiting is a comparatively frequent symptom and occurs in twenty to forty per cent. of the reported cases. Convulsions occur in ten to twelve per cent. of tumors of the pituitary body. They are usually epileptiform in character, sometimes being worse on one or the other side and affecting more rarely one side of the face, or, according to Cushing, assuming the form of uncinat attacks.

Paralysis occurs in a few cases and may assume the form of a hemiplegia or more rarely paraplegia or monoplegia. There is, however, quite commonly present a sense of general weakness. The gait may be staggering in a small percentage

of the cases. Sensation is rarely or never disturbed. Parasthesia or subjective complaint of pain is infrequently noted. The reflexes are not disturbed in a characteristic manner. The knee jerks are more frequently increased than otherwise, but may be absent or irregular. Tremors occur in a few instances. Consciousness is often disturbed, taking the form of somnolence most frequently, or dullness, stupidity, or apathy. On the other hand, the patient may be excitable or ill tempered or his manner may be childish. Finally, hallucination and depressive states are noted.

I will not discuss at length the symptoms referable to the visual apparatus, as these have been so ably discussed by Dr. William Campbell Posey, to whose paper I refer my readers. Briefly, these consist of disturbances of the field of vision, occasional oculomotor involvement, nystagmus, exophthalmos, ptosis, and photophobia. Other cranial nerve involvement is rare. There are a few cases on record, however, in which the facial nerve was paralyzed. The sensation of taste may be lost, and in a small number of cases diminution in the sense of smell and hearing has been noted.

It is conceivable that the rhinologist may be the first to see cases of pituitary disease, for in some instances there is a mucous or a clear watery discharge from the nose, or there may be epistaxis. Beside skeletal changes, there may be alterations of a hypertrophic nature of the skin, associated with glandular activity. Subnormal temperature as well as low arterial tension may be viewed as hypopituitary symptoms. There are infrequently observed polyuria and polydipsia.

It may be said, further, that the increase in the fat deposit is due to deficient posterior lobe secretion. Wakefulness, excitability, and irritability point to hyperpituitarism; drowsiness and convulsions, to hypopituitarism. Hyperpituitarism produces gigantism and acromegaly. Hypopituitarism produces adiposity, failure of development, and sexual infantilism in childhood, and in adults sexual infantilism of the reversible type.

1732 PINE STREET.

THE DIFFERENTIAL DIAGNOSIS BETWEEN THE ACUTE PATHOLOGICAL PERFORATIONS WITHIN THE ABDOMEN.*

With Special Reference to Duodenal Perforations; Indicated Technic of Operation.

BY JOHN E. SUMMERS, M. D.,
Omaha,

Surgeon, Clarkson Memorial Hospital, Douglas County Hospital, Etc.

In a discussion of papers upon appendicitis read by Doctor Maclaren and Doctor Moore, at the last meeting of the American Medical Association, Dr. J. M. T. Finney, of Baltimore, said: "In appendicitis, in my judgment, the mortality is absolutely preventable. When a death occurs from appendicitis, it is *prima facie* evidence that somebody has made a mistake." My own experience teaches me that this position, with rational qualifications, is

*Read before the Western Surgical Association, December, 1914.

the correct one, and that the same statement holds true regarding peritonitis following all forms of pathological perforations within the abdomen, with one exception, that of typhoid fever, when the mind and sensibilities are obtunded. It is always possible, after operation, when the patient's equilibrium and that of his family and friends are restored, to get a history of antecedent symptoms in every case of acute perforation of the abdomen, whether the lesion is of the stomach, duodenum, gallbladder, pancreas, appendix—all of these in the male. In the female may be added infections or impregnation in the Fallopian tubes. As Moynihan says, "late symptoms are too often the heralds of death; inaugural symptoms may be the cry for timely surgical assistance." Surgeons are all familiar with the classical symptoms of acute abdominal perforation, i. e., peritonitis, soon becoming general, following a sudden onset of severe, *excruciating* pain, short, quick breathing, an anxious expression of face, rigidity of the abdominal muscles. The accurate differentiation between the different lesions depends to a very great degree upon the anamnesis—one must know the initial site of severe pain, since it becomes general later, and there may be no point of greatest intensity. If the history gives the usual signs of chronic gastric or duodenal ulcer, there is, as a rule, no difficulty in locating the perforation; however, a patient frequently remembers only a "slight indigestion," or no symptoms whatever, until the perforation took place. Careful questioning often elicits answers contradictory to these statements, giving an entirely different history. When the history is unreliable, one must depend upon the physical examination. Alexander Miles differentiates between gastric and duodenal ulcer perforations as follows: "When the most tender area is in the left hypochondrium, the perforation has almost invariably been toward the cardiac end of the stomach; and when in the right hypochondrium, near the pyloric end or in the duodenum." Miles finds this association so constant that he relies upon it as a guide to the site of the incision. The physical symptoms of duodenal perforation and appendicitis are often so similar that it is difficult to distinguish between them. Both are characterized by pain in the right iliac fossa; in duodenal perforation, however, there is always pain in the right hypochondrium, which occurs only exceptionally in appendicitis. On the other hand, the intensity of the pain is not so great in the latter as in the former, nor are the abdominal muscles so extremely rigid—consequently, in appendicitis breathing is not so short as in case of duodenal perforation; here, again, if these physical differences cannot be distinguished, one must rely chiefly upon the anamnesis. E. Stanmore Bishop (*British Medical Journal*, May 4, 1912), does not agree with Moynihan (*Ibidem*, February 17, 1912), as to the difficulty in diagnosis of cases presenting symptoms of gastroduodenal ulcer, but in which the origin of the trouble is elsewhere. Mr. Bishop says: "It is in the *differences* noticeable between the symptoms present in previous attacks that some assistance to a diagnosis may be found." He thinks these cases are very likely to be appendicitis of the "relapsing variety," and tells of instances in which the symptoms of earlier attacks

were exactly those of gastroduodenal ulcer, which must have been the preoperative diagnosis in the earlier years of their history. Later, characteristic symptoms of appendicitis developed.

Occasionally an acute perforation in the gallbladder will present symptoms so similar to those of duodenal perforation, that an accurate diagnosis may be made only by obtaining a careful history. Moynihan, in his book on *Duodenal Ulcer*, tells of only one instance of acute perforation of the gallbladder, in which the anamnesis revealed symptoms mimicking those of duodenal perforation; since the patient seemed less dangerously ill than he would have been in the usual duodenal perforation, the case was rightly diagnosed as an acute perforation of the gallbladder. On the other hand, a patient suffering from an acute perforation of the gallbladder, operated upon by me, presented symptoms as intensely acute as I have ever seen in perforation of the duodenum.

It may be difficult to distinguish between acute pancreatitis and perforation of the duodenum. A careful history in a case of acute pancreatitis will often show dyspeptic symptoms identical with those of gallstones, while in duodenal perforation a history of previous indigestion is unusual, except that so classically described by Moynihan as hyperchlorhydria, which he calls duodenal ulcer. Mr. D'Arcy Power (*Lancet*, July 13, 1912) says, "indeed the absence of a history of dyspepsia, with the signs of sudden perforation . . . inclines one at once toward an exploration of the duodenum." Vomiting is also an important symptom pointing to pancreatitis. It must be emphasized that in an acute pancreatitis the pain is very severe, and the tenderness is in the pancreatic region. In four cases of acute pancreatitis operated in by the writer, there was a gallstone history, and gallstones were present in three (two were hemorrhagic), and in the fourth (acute abscess), drainage of the gallbladder was finally necessary to cure a second attack.

A variety of conditions may bring about acute perforation elsewhere in the abdomen, e. g., in the jejunum, which is almost invariably caused by ulceration secondary to the performance of gastroenterostomy, I have never seen one. In the ileum, or in the colon, the typhoid perforation occurs most often, and is the most important; its location is usually in the ileum near the cecum, where its physical symptoms would be very similar to those of appendicitis, which may be a complication of typhoid; however, in a patient suffering from typhoid, a typhoid perforation may usually be differentiated by the onset of pain (more sudden than in appendicitis), by increased vomiting, possibly a chill in connection with the pain, and by the accelerated pulse rate. In typhoid diarrhea is the rule; in appendicitis it is constipation. Practically the only source of assistance in distinguishing between a typhoid perforation and gastroduodenal lesions (also possible complications of typhoid), is found in the antecedent symptoms. When an acute affection of the gallbladder complicates typhoid, the occurrence of jaundice will be of diagnostic value.

Dr. George Armstrong's paper on typhoid perforations, read in London at the last Clinical Congress of Surgeons, differs very much from the usual

textbook descriptions or clinical analyses of typhoid perforations. In his analysis, based upon a study of 15,224 cases of typhoid fever, there were 544 perforations, or about one in thirty-one and one half; eighty-three of these occurred in the Royal Victoria Hospital, and 110 in the Montreal General Hospital; as he is a surgeon to these hospitals, one must realize that his opinions have a sound foundation. He states that the first indication that perforation has occurred is usually pain. The pain is often not severe in character. Doctor Armstrong emphasizes the fact that in the training of a typhoid nurse, she should be taught to send for a physician whenever a typhoid patient complains of abdominal pain. The second symptom which he emphasizes as of greatest importance, is the change in facial expression. It is usually, in the majority of cases, quite evident. There may be pallor, a look of distress, restlessness, vomiting, chills, profuse sweating, general malaise, an unaccountable change for the worse in the general condition; a feeling among those in attendance that something has happened for which they cannot account. Tenderness and rigidity were present in some degree in about eighty-five per cent. of all cases, and usually were present within the first two hours following the initial pain. Personally, I have always found liver dullness unreliable as clinical evidence in any form of abdominal perforation. Doctor Armstrong observed that there was seldom a fall in temperature, and always a rise in the pulse rate.

One must not forget in differentiating between acute lesions within the abdomen, that identical symptoms may have their origin in some intrathoracic lesion; they are usually the symptoms of appendicitis. Moynihan (*Duodenal Ulcer*), quotes the late Doctor Maurice Richardson as follows: "The diagnosis between acute thoracic and acute abdominal disease is always easy as soon as the characteristic signs of either are apparent. The chief difficulty in making a distinction is to recognize that the necessity for that distinction exists, for the thoracic symptoms are always masked by the more conspicuous and distressing abdominal ones. Once the attention is drawn to the possibility of a thoracic cause, not only for the thoracic, but for the abdominal symptoms, an accurate diagnosis is perfectly easy." Regarding this quotation, I feel like repeating what Moynihan said to me not long since; that Maurice Richardson expressed himself better than any other American with whose writings he was familiar.

In women, the diagnosis of acute conditions of the Fallopian tubes and the ovaries, which have caused peritonitis, may be greatly aided by careful vaginal examination, in addition to abdominal examination. The only other diagnostic means is a minute inquiry into the previous history. If one has not been able to distinguish accurately between these conditions, however, and a possible appendicitis or other intestinal lesion, either one may be easily reached through the same incision in the right iliac fossa.

All reference to blood examinations in differentiating the several kinds of perforations considered, has been purposely omitted. With our present knowledge the best that might be expected from such examinations would be the better recognition

of the resistance of the individual. When practicable, blood examinations should always be made.

We come now to the indicated technic of operation. We have seen from the foregoing that the most important differential sign is the location of the point of greatest tenderness. When the origin of the trouble cannot be accurately located, it is generally thought best to make the incision in the median line. This is not advisable (Johnson); there are many possible lesions which could not be reached from a median incision unless it was a very large one. Septic processes originating to the right of the midline by far outnumber those to the left, consequently a vertical incision two or three inches long, through the right rectus, just on a level with the umbilicus, is preferable. If the trouble proves to be in the stomach or duodenum, gallbladder or pancreas, the incision may be extended upward sufficiently to reach these organs; on the other hand, if the appendix, or a typhoid perforation of the ileum, or the uterine appendages, are suspected as the origin of the trouble, the incision may be continued downward so that they may be investigated. When the site of the lesion is reached, the perforation should be closed. When the site of the perforation is an ulcer of the duodenum, the ulcer should be excised or infolded. It does not seem best to perform gastroenterostomy. Moynihan does a gastroenterostomy only when there is danger that the excision or the infolding of the ulcer will decrease the lumen of the bowel so as to obstruct it; the performance of gastroenterostomy would only increase unnecessarily the time required for the operation. This advice applies to patients in a weakened serious condition; they are late operations. In timely operations with patients in good condition, the ulcer should be infolded if necessary, practically obliterating the duodenum. This is done always after the gastrojejunostomy. Obliteration of the duodenum, whether by infolding or ligature suture, whatever the material used, should be regarded as a temporizing measure, giving time for the ulcer to heal. In two cases, on later occasions, we were able to demonstrate that the lumen of the duodenum was completely restored after a heavy linen ligature had been used—the linen had disappeared. Let me note also in corroboration of this principle, that I once ligated the Fallopian tubes with silk in a Cesarean section, and within a few months the woman was pregnant again. Although I have had no experience with autogenous suture material for the obliteration of the pylorus, I am skeptical about the permanency of the results. Resection of the duodenum is the only positive means of its permanent obliteration. Drainage, local, pelvic, or both, should be employed as the judgment of the operator determines.

For purposes of illustration I have selected from my personal notes, five cases of acute perforation of the duodenum, as they cover the field of this lesion as we meet with it in actual practice.

CASE I. A man, aged about thirty-three years, was first seen on the morning of January 20, 1900; he had that morning been seized with very acute pain in the upper abdomen. The history elicited was that he had, from time to time, been a sufferer from "acid dyspepsia," for the relief of which he had been in the habit of taking baking soda. The symptoms so simulated gallstone colic that I made this diagnosis, and sought to reduce the pain by hypo-

dermics of morphine, and the local application of heat. Late in the day I became suspicious that a wrong diagnosis had been made, and Dr. W. O. Bridges saw the patient with me, in consultation. We suspected the possibility of a perforation, either of the stomach or duodenum, but were uncertain. The patient rapidly became very ill and died the following morning, twenty-four hours after the first seizure of pain. A post mortem examination disclosed an acute peritonitis caused by a perforation of a duodenal ulcer.

CASE II. A taxidermist, aged thirty-five years, curiously enough had a history as to acidity, similar to that in Case I. He, too, had taken baking soda to overcome the acidity. This man was seized with very acute pain in the abdomen, at four o'clock in the afternoon; he consulted a physician, who gave him some morphine powders to control his "colic." Not receiving sufficient relief, he proceeded to take a number of drinks of whisky. The pain continuing, he went to the Clarkson Hospital at ten p. m. He was seen by my assistant, Doctor Scott, who made a diagnosis of acute pathological perforation in the upper abdomen. I operated within the hour, and found a large perforating ulcer of the duodenum, which was closed by suture. Through a suprapubic incision a considerable quantity of strong whisky-smelling fluid was sponged out of the abdomen, and a rubber drain introduced. Convalescence was uneventful.

CASE III. A man, aged thirty-three years, was taken with the symptoms of acute perforation of the abdomen; he gave a history of indigestion and hyperchlorhydria; he had had several attacks of pain in the upper abdomen, these usually in winter time; the history of the attacks dating back eight years. The first site of pain and the tenderness, was the right upper abdomen. His physician's diagnosis was acute appendicitis. To my mind, however, the symptoms were positive of perforation of a duodenal ulcer. The operation was done at the Clarkson Hospital, twelve hours after the beginning of acute symptoms; the findings were perforation of a duodenal ulcer and local peritonitis. The perforation was sutured, practically occluding the duodenum; a posterior gastroenterostomy was done. Recovery followed.

CASE IV. A man, aged twenty-eight years, gave a history of hyperchlorhydria and "hunger pain," dating back five years. After two days' prodromal symptoms, the symptoms of acute perforation developed. His physician's diagnosis was acute perforative appendicitis. The operation at the Clarkson Hospital, six hours after the first acute symptoms, disclosed a perforating ulcer of the duodenum, which was infolded, practically occluding the duodenum close to the pylorus. A posterior gastroenterostomy was done, and a suprapubic drain was introduced. There was a prompt, uncomplicated recovery. One year later, I successfully operated on this man for an acute suppurative cholecystitis.

CASE V. A man, aged forty years, a dentist, of Harlan, Iowa, had suffered from numerous attacks of sharp pain in the abdomen; the last attack, from which the patient was in bed but convalescent, had continued for two weeks, and had been diagnosed as a cholecystitis. I was called to operate for cholecystitis. An incision disclosed a normal gallbladder, and while I was examining this, a perforation of the duodenum, with commencing leakage (bubbling of gas and then escaping chyme), was observed. This perforation, with the leakage, took place under my eyes, while I was inspecting the gallbladder, and for this reason is particularly interesting. The operation consisted of infolding of the ulcer, and the doing of a posterior gastroenterostomy. The recovery was uncomplicated.

Radium in the Treatment of Papilloma.—W. H. B. Atkins, in the *Dominion Medical Monthly* for February, 1914, reports the case of a young woman who noticed a small lump growing on the upper gum on the right side of the mouth. About a year later, the mass, having become larger, and the adjacent wisdom tooth were excised. The patient began radium treatment, some five months later. The tissue broke down very rapidly, with bleeding. After two applications of a radium tube the papillomatous mass disappeared, leaving a smooth, healed margin.

THE NATURE AND PATHOGENESIS OF EPILEPSY.

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(Continued from page 392.)

Often enough one may trace the infantile striving in the first setting of an epileptic attack which in later life has become quite unconscious. Frequently such desires found presented in the epileptic seizures also furnish an understanding of the focal or Jacksonian character of the attacks in what would appear as an otherwise idiopathic grand mal. The following brief note is an excellent illustration of the point: A young man, twenty-three years old, who had grand mal epileptic attacks since thirteen years of age, was typically epileptic with the epileptic constitution and its psychosexual infantilism. His attacks were peculiar in that the initial spasm invariably began in a flexion spasm in the left hand and arm. It was accompanied also by a turn of the head to the same side; after which the spasm became general over the entire body attended by complete loss of consciousness, often accompanied by tongue biting and passage of urine. There was no apparent neurological reason for the focal onset of the attack. In more minute study of the developmental life we find that the patient slept with the mother until he was nearly thirteen years of age. He was a "mamma's boy" of a pronounced type and has not lost these salient characteristics yet. It was found that from earliest life he slept on the right side of the mother's bed, the wall of the room was at his right, yet he always had a dread that someone would reach through the wall in the dark and drag him backward. Even though he entwined his left arm under the mother's right, turned his head sharply toward her to the left, and pulled the blankets nearly over his head, he still had the dread. At thirteen years of age, he was completely banished from this childish contact with the mother. He went to sleep with the older brother, who took entire charge of him. His fears increased, although he made a slavish transference on this brother. He practised the same conjuring tactics to avoid the fear in the brother's bed that he had with the mother, but of course with less satisfactory results. Soon his epileptic attacks appeared and were of the type of motor petit mal, confined to the head turning to the left and a spasm in the left arm; in a year or so they became general and his condition has been repeatedly diagnosed as a confirmed epilepsy. After a fit his sense of mental relief from the fear is great; the old fear, however, slowly returns. At first, by an effort of the will and by seeing to it that no one follows him, by keeping the head turned slightly to the left, so that the senses may be quite alert, and by making sure that he is alone, so that no one may touch him on this left shoulder from behind—he is safe for a time. Soon, in a week or so, the situation of fear becomes more acute and he has one of his usual attacks. In just such cases it is often puzzling in the extreme to say just when the neurosis became an affect epilepsy and, finally, just when and how the whole episode transformed itself into one of essential epilepsy. What do these

obsessive fears really mean in this patient? The dream brings over and over again various encounters with robbers, personal assaults which always end in his apprehension by the police, until he is finally incarcerated in a prison cell or in a dungeon, at which final stage of the dream he is immensely relieved, feels safe, is at peace with the world, and has no more fear. Furthermore, in the dreams and in the beginning of the fit, there is a slight sense of suffocation, a sense of being bound or bundled in, of being folded about and floating away in space; freedom, and a sense of the utmost security. Both the dreams and the pieced together sensations in the attacks bring him to the same place—a close, shut in, safe place where he is at peace from the world, and where he is quite *en rapport* with his lot. Such a haven can hardly be other than an unconscious return to the mother life. It is interesting to note the infantile striving in these dread neuroses, and the epileptic unconscious strivings are probably more intense than simply a desire to be caressed by the mother in the cradle, the mother's arms, or lap. The state of oneness desired is to be actually in the mother, and the physical union of the intrauterine life is really sought. (The desire was still strong even though the patient was in bed and was already in actual contact with the mother there.) A single case of this sort must fully convince us that the final depth of the unconscious strivings in such epileptics is often to return to the nirvana of the uterine life, a state of perfect *Allmacht*. Classic literature abounds in the often described attacks of actual epilepsy in historic personages in which they are "caught up into heaven," which state seems familiar enough to them—where "they have often been before" and where there are all the perfect settings of peace, etc. See descriptions of the epilepsy of St. Paul, Mohammed, Dostojewsky, Mother Ann Lee, etc. Similar descriptions in everyday clinical experience are so common as to cause wonder that the whole libidinous satisfaction of the unconscious striving in the fit has not been long ago detected.

Epilepsy as a further variant manifestation of the imperfectly developed libido is frequently heralded by sleepwalking, vertigo, psychical states of exaltation or great stress, shocks, depressions, states of anger, fear, fright, and by any number of the various psychical manifestations in an ill balanced emotional life involving a psychosexually inferior makeup. These heralds of an aftercoming epilepsy are at hand if they are carefully looked for. Most frequently they are ideally shown in the dreams, which should always be carefully searched in every case of epilepsy both for the preepileptic settings and also to determine the unconscious motivation of the convulsive episodes when once established; and again to determine the stage of development of the emotional psyche with which one is really dealing. For instance, as an illustration of our point, in Case iv we have the dream ending in sleepwalking as a premonition of the disease, and in Case vii we have the father-brother antagonism and the unconscious striving for a unity with the mother, furnishing a series of dreams for several years before the unconscious broke through into the epileptic fit. To the latter patient, the physical and mental contro-

versy was always the same in the dream, being a desire to "overcome" and also to rid himself of the controversial state, to seek "peace and quiet and perfect security." These two wishes were finally consummated in the fit which the patient, on recovery from it, at once announced to be the end sought in the dream. Yet consciously, after the fit, he felt depressed and physically exhausted, as is usual in epileptics after a grand mal attack. Often in the dream he felt as though he were actually in movement, that he was strained to the utmost physically and mentally, yet there really were no muscular movements until the "magic signals," the actual in-coordinate movements of the attacks were put into play by upsetting episodes which drove or permitted the unconscious strivings to seek an outlet in a real fit. It may be added that the peculiar dream has not recurred since the epilepsy broke forth.

The question naturally arises, What do dreams of attacks in the epileptic really mean? In the clinical text of cases some specific examples of these dreams will be given, but in general terms it may be said here that dreams of attacks in the epileptic may have a number of different expressions of libidinous discharges. In some the motive seems to be quite adult in type; in such the dream attack is a wish fulfillment of the very grossest sexual kind as in Case ii and Case iv, but in others dreams of attacks are heralds of real attacks. For instance, in Case vi, the patient was recently hurried a little too rapidly in studies, work, and adaptation to certain new social demands; she had a dream in which she beat her nurse, told her what she "thought of her" and the whole enforced system of treatment, broke open the door, ran out of the house, and fled across the fields in a perfectly happy childish manner. She sang, danced, and felt as though she were having the "time of her life," etc. In such a dream it is not difficult for us to see the symbolism of the principles of an epileptic attack as laid down in this thesis. The patient, overburdened with displeasure affects which were poorly repressed and not properly sublimated in normal everyday adjustments, vented her spleen on the nurse whom she considered to be the immediate author of all her woes. She then took a flight away from the disagreeable settings of her irksome plan of treatment, and sought a pleasurable state nearer to her heart's desire. The next night she dreamed of having an attack before the nurse in which she seemed to dramatize her dislike for the nurse, but before finishing the attack she gained the proper attentions from her nurse who consciously she really thought did not ordinarily sympathize enough with her difficulties. The following day, she felt irritable, depressed, and appeared sullen. She was hateful in her attitude toward all about her and had a classic grand mal seizure in the afternoon. The night following the real attack she had a pleasant dream of working with her class in the shop, she sang and danced, and was so solicitous and kind to all that her companions and nurses gave full vent to their kindly feelings toward her in return. She awakened the next morning feeling bright, happy, and cheerful.

In another case (vii) the patient had several days of anxiety and displeasure because she was not to

visit her people as planned; she was to postpone the return home until she was better, etc. The night following the final decision that she was not to have her way, she dreamed her mother was with her, both she and the patient were much annoyed at the delay in the treatment, and finally the patient, while expressing to the mother all her objections to the things she disliked around her, dreamed she had several sensations (*petit mal* attacks) in rapid succession; in the attacks she thought she pushed "something away from her" and beat the air as though fighting off some imaginary wrongs that were personified in people not unlike her nurse and physician. After this exhibition of dislike, she dreamed she grasped the mother's hand and fled home. She was happy and felt care free, etc. Again in this instance we see the motive of a discharge against painful and ill adjusted displeasure affects followed by a flight back to the perfect care free state of home and mother. Two days after, while still feeling disgusted at the miscarriage of her plans, she had a mild *petit mal* attack, after which she resumed her usual everyday tasks. She had not had a similar attack for weeks before the episode above detailed.

The foregoing examples are probably the simplest sort of motives in the dream attacks, but they are not essentially different from the motive of the more adult kind seen in some epileptics where the normal sexual act is nearly paralleled. The former are probably but the most primitive infantile rudiments of a motive of sexuality.⁵

At this point the reader may feel like admitting that the loss of consciousness may be due to a motivation of the unconscious whose insistent activity in the psychosexually inferior may pierce or shatter normal consciousness and clear a little space in the everyday life for dramatization of the unconscious libidinous energies, but they may not see how the same mechanism shall account for the convulsive part of the fit. In answer, we may reply that we do not precisely know how this is brought about, except that the epilepsy discharges from the mildest minor attacks wherein it is often possible—and more frequently possible than not—to collect fragments of mental action, behavior, and conduct which, when pieced together, prove that there is a libidinous urge in the fit. Probably the same may be said of the convulsive part of the epilepsy to account for the severest grand mal in which the unconscious strivings can be detailed only in the grossest and crudest terms. One can only say that the theory runs parallel with all associated psychical life, grading from simple thought fancies to those attended by the most complex and violent muscular activity. As the language of the unconscious may never be really comprehended by the normal logical mind, just as the present day may not really know the primitive mind—at least not in the precise manner in which each strives to tell its story—so one may find it equally difficult to inter-

ject himself into the feeling of what Jackson has poetically but scientifically described as the "clotted mass of movements" of a convulsion, wherein there is a blurred and overlapping, contending set of muscular movements known as the grand mal fit. Through the ages certain types of aura, as well as certain feelings in the fit, have been designated by the epileptic as "indescribable"; often conscious language to such is not capable of making the unconscious known. Epileptics know full well what they have felt, but cannot translate it to our conscious understanding. Many of the common characteristics of the convulsion are not very dissimilar to those often seen in the terrific outbursts of anger, the contortions of pain or even those seen in the gleeful or angry moods of the infant. The similarity of the latter to a fit has been especially treated by Ferenczi.⁶ Still speaking of the spasm of the fit, the gradual transformation of an obsessive neurotic from a state of simple obsessive thinking to an open and frank use of a definite formula of muscular movements (*habit movements*, *tics*, etc.), is an interesting neuromuscular mechanism for study. Again, one sees in the mechanisms of the hysterical convulsion, which are often identical with the epileptic spasm, a psychic motivation of the fit wherein there is a general form of reaction with and against the repressed affect, partly at least as a direct motor expression of this memory (Freud). The relationship of the two mechanisms must be studied anew. When this is done I believe the epileptic convulsion will appear less senseless and strange, especially when one follows the interpretation which we have striven to give here and elsewhere. We know that some of the movements in epilepsy are probably conscious protective ones, as automatic throwing up of the hands, the clutching for objects, etc., to prevent the individual from falls. Not a little of the blur of movements in irregular spasms in the fit is understandable on this ground alone. Further, in the unconscious state it needs but to be mentioned that the epileptic grasps his genitals and makes a series of clonic movements often highly suggestive of sexual acts or a close mimicry of the same; further proof is at hand in the series of moving pictures of fits, such as the admirable ones of Doctor Chase and Doctor Weisenberg, which are striking. As a further contention to the thesis, one needs but note that the libidinous strivings of the unconscious are in their grosser outlines comparable in all cases, even as dreams are alike in character in people having a common culture and social status. This being the case, we should expect that the epileptic manifestation, both psychic (simple losses of consciousness) and physical (convulsions), should be closely comparable case for case. This is exactly what we do find, for an epileptic fit is a fit which is closely comparable one with another in the same case, and all those shown in any one case are not very unlike those in others similarly afflicted. One must, however, allow for individual expression of the libido even in epileptic fits, however rigid and narrow the channel for the neuro-

⁵The ordinary restive, somewhat painful repression of the fore-pleasure of the sexual act, the final discharge or riddance of this displeasure in the seminal emission, and the final peace, quiet, and restful contentment that follow, need to be thought of in analyzing the dream attacks of epileptics, whether simply infantile in motive or fairly adult in expression, as being a very close mimicry of conscious sexuality.

⁶Ferenczi, *Developmental Stages of the Sense of Reality* (Gost note), *Internat. Archiv. f. Psychiatrie*, vol. 7, 131, 1913.

muscular mechanisms may be. In time, I trust it will not be too fanciful for us to hope that the language of the fit may be as analyzable as its congener, the dream, and thus afford us some clue to the depth and breadth to which the psychobiological life has been subjected, perverted, or incompletely evolved.

Just as it has been found necessary for us to search the infantile or the unconscious instinctive cravings of the epileptic to explain the motivation of the loss of consciousness, so we must look to this early and simple period of life for the understanding of the convulsive part of the fit. We shall therefore strive to make clearer this infantile period and compare the emotional life and impulsive movements of the infant with certain convulsive aspects of epilepsy.⁷

The whole behavior of the nursing is determined insensibly by feelings of pleasure and those of discomfort; the latter far outweigh the former, but diminish in the normal child very rapidly after the first ten months. The hampering and unpleasant influence of the clothing and desire for its riddance by the child, is paralleled in the epileptic by the common disrobing habit in the unconscious automatic state. Efforts to restrain the latter from this act often entail antisocial reactions of great violence. To abreact from the disagreeable also makes clear the *Wanderlust* of the epileptic.

The cry of the epileptic is more than a simple expiratory act of forcing air through the partly closed glottis. To some observers it spells despair; to others it is not unlike the bellowing rage of cattle; to still others it is an indescribable mingling of joy, surprise, and hate. It is really closely comparable with the piercing, persistent, high pitched tone of pain, the whimpering, plaintive note heard from the infant when in an uncomfortable posture; at times it has the loud, blatant, noisy cry, rising to unexpected intensity, given by the child experiencing a cold bath. The two cries appear to be the more identical in motivation when one discounts the modifying influence which growth has brought about in the adult epileptic. That the motivation of these cries in the child and the epileptic is instinctive and impulsive may be shown, in

part at least, by the impossibility of our being able to fully reproduce either in mimicry.

The corrugated brow, the screwed up face with its expression of fear, hate, or rage seen in the intenser spasm of the fit, finds a parallel in the infant's reaction to a strong emotion of displeasure. All of our efforts to make the cry and convulsion mean something in a conscious way, are but evidences of our secondary elaboration of the complete phenomena of epilepsy and an entirely erroneous approach to the disease.

Continuing the comparison of the fit motive and the infant behavior, we know the latter often expresses a combined pleasure and displeasure cry which starts with a high pitched crowing tone and ends with an acoustic expression, a peculiar grunting made by an oscillation of the uvula, with the mouth either shut or slightly opened. This is also heard in many epileptic attacks. In both the act is associated with fixation of the abdominal chest muscles in an expiratory act. Almost invariably one finds this peculiar cry associated in infants with tonic-clonic movements in the arms and legs suggestive of an epileptic fit. In point of fact my attention was first called to the whole matter in my intern days at Craig Colony. I then lived in the observation hospital and was making a prolonged study of the status and its exhaustion palsies. It was also a time when my first child was an infant, a few months old. One day, on returning from the wards, I saw the child's impulsive random movements and heard this peculiar displeasure-pleasure cry accompanied by the tonic-clonic movements above mentioned. I was startled by the close resemblance the whole picture had to that of the grand mal attacks of epilepsy I had just witnessed in the ward.

The mysterious but excessive predilection which the infant has for simple movements to show joy or hate, as well as its instinctive leap from displeasure to pleasure acts, are paralleled by the adult displeasure-pleasure motive in the fit. The two are only understandable when the labile psychomotor development of the infantile mind and the infantile unconscious of the epileptic are compared. In both supersensitive states there are very strong feelings which are brought into play by motor discharges consonant with the character of the stimuli applied. The very frequent deflections of the head to one side or the other in an epileptic fit, often described as a turning away movement, are commonly paralleled in infant life by the same act at the slightest degree of discomfort even before the displeasure cry is given. The enormous possibility for expressive movements which the head possesses, either by itself or in association with the mobile face, explains its constant occurrence in any marked evidence of convulsions. Then, too, the face, even in classic grand mal, shows with the rotators of the head a predominance of spasm on one side or the other. The same is common in the infant when it turns its head from displeasure and toward the mother's breast. In the great majority of epileptics the mouth is drawn to the side and upward and backward, as though in the same phantom pursuit of the mother's body. The form of the mouth in the epileptic attack is probably the most delicate index of the mood of the adult as well as in children. Even in the interparoxysmal

⁷Probably all the convulsive movements in all the various types of epileptic fits, from the most purposeful and apparently ideational or voluntary acts seen in the slightest grades of seizures, are drawn from the different developmental levels of child activities. They start from the first spontaneous or impulsive movements of the intra-uterine life which correspond to the tonic-clonic spasm of the grand mal fit and shade out or up in development through the taking on of the reflex, the instinctive and the ideational movements. Such movements form the different types of the lighter or milder seizures of partial epilepsy or even the paraepileptoid symptoms of the epileptic psychoses. All these different developmental levels of fits may be disturbed at the same time, in the one fit, or they may occur at the one period in any single fit, marking the convulsive seizure. This blurring or overlapping of all sorts of movements has accounted in no small degree for the bewilderment experienced in our trying to describe an atypical seizure wherein different types of acts are occurring in different degrees simultaneously. Studies with this view in mind ought to show the successive order in which the neuromuscular or psychic mechanism is assaulted and to what psychic and physical discharges the discharging fit really penetrates. From such data it may be possible for us to form a clearer diagnosis and prognosis of the individual case. One must not forget, however, that the real causative agent in all fits is the same, be they the mildest petit mal or the severest grand mal. That is, the infantile unconscious really demands expression by a discharge of its displeasure affects and at the same time seeks a fight from these harassments to a state of harmony and peace, the only one it has ever known—that of intrametroteroticism; the kind and character of muscular movements the unconscious sets in motion to gain this end mark the intensity of the organic demand in the particular case. Any number of precipitating causes may fire the fit gun, but nothing but a profound defect in the organic life can make the epileptic constitution and the sequential seizure phenomena.

period the epileptic mouth is quite characteristic and furnishes not a little to the unpleasant setting of the epileptic physiognomy. The mood reaction to the disagreeable is alike depressive to the angle of the mouth in the passive state in epileptics and in the unhappy state of infants. In the grand mal attacks of the greatest severity, as shown in some of my own patients who were photographed some years ago, one sees the quadrangular or squarely open mouth. This form of mouth is almost invariably seen in all severe status cases. All observers of infants speak of this form of opening the mouth in extreme states of displeasure. Darwin in particular dwelt upon it as an extreme expression of childish rage.

The accumulated affects of displeasure may thus break out of their own accord in the infant or in the adult epileptic by an attack, the behavior in either one, as far as one may judge, is not dissimilar; often the epileptic under what would be considered ideal circumstances suddenly blows up a storm and has a periodical fit discharge of his affects which seem to have been storing up for days previous to the outburst. Many times the infant has these storms of temper from sheer weariness or when the nervous tension is so great that sleep is denied it, or, even when it cannot get to sleep until it has had a crying spell. Displeasure affects, however, usually initiate the temper explosions in the child, and fits in the epileptic.

It is interesting to note the *tadium vitæ* in the infant and epileptic alike; the lustreless eye, indolent movements, cessation of spontaneous interest, a falling of the countenance, or a somewhat paler complexion. All such in the epileptic have long been considered heralds of grand mal attacks. Even in sleep the finer expressions of dislike and hardness of the epileptic countenance are not absent and follow him into sleep. The rather uniform expression of unhappiness on epileptic faces in a sleeping ward is striking, and once seen, never to be forgotten.

The great importance of a great amount of sleep in the epileptic is comparable with that in infants. If the epileptic makes no compromise with reality and in consequence weariness and displeasure affects slowly accumulate and are not vicariously discharged or sublimated in athletics or work, sleep or an enforced withdrawal from the world is doubly necessary just as it is with the infant. As both learn the life-compromise, the necessity for prolonged sleep becomes less imperative; the dreams are then less active and possess less insistent longings. Often enough interruptions of sleep in infants, as well as in epileptics, during that state after attacks, are alike disastrous to well being or even to good temper. "Ugly as a bear" is often the nurse's designation of the epileptic temper when the latter is disturbed from completion of the recovering sleep after the grand mal attack. All observers urge the let-alone treatment for the epileptic when he has had a fit. Preyer cites many instances in which children suddenly disturbed from sleep have been thrown into a state accompanied by trembling and convulsions. The same effects have been seen even in perfectly healthy children, and a lasting depression of spirits has been engendered thereby.

If it be true that the infantile unconscious is the

motive instinct seeking expression in the fit, then one might expect that the type of muscular movements in the epileptic episode would be from that period; in other words, the movements in the fit would embrace the infant type of activities intra-uterine and extrauterine. The impulsive activities are always incoordinative and in later life are brought under the domain of the will. In point of fact, in studies of psychogenesis, Preyer makes them and their instinct incitors from the general functions of fetal tissues actually the nucleus or the beginnings of will itself. The impulsive acts are not directly useful in any conscious sense, and in infant studies before and since the time of Preyer's, they have defied analysis in origin, manifestation, and ultimate purpose to the organism. They are irregular as well as incoordinate, usually symmetrical yet asynchronous like those more elaborate activities in the fit itself. These impulses seem to answer no purpose. Often enough they are obstructive to the welfare of the child. Infants in their display frequently inflict harm upon themselves; they strike their eyes or face and even inflict scalp wounds upon themselves by impulsive head movements. Sleeping infants are often distressed or awakened by impulsive activities, the intensity of which often amounts to a convulsion. Impulsions have none of the characteristics of an ideationally planned act and are no more expressive of an instinctive movement than they are of a reflex response. The long, careful, and well known experiments of Soltmann have proved this. Impulsive movements proceed from the primary demands of organic life and are the summation of its desires, and may be designated as the organic substratum of the infantile unconscious libido. Impulsions are the first germs of willing, in the language of Preyer. By far the greater number of the fetal activities are of this character and rapidly diminish in the infantile period until, after the ninth month, they are largely if not only to be seen in the sleep of young children. Probably not a few of the bizarre movements now and then seen in the adult during sleep, and particularly in the epileptic, owe their composition to such impulsive movements. Studies of movements and postures assumed by epileptics during sleep, such as those made at Craig Colony, show these impulsive acts in an exquisite manner. The infantile poses and even the ceremonials of sleep of epileptics should be studied even more carefully. The persistence of these impulsions in the behavior and conduct of the waking and sleeping states of epileptics furnishes an illuminating sidelight upon the somatic and psychic infantilism of the epileptic, even though one remembers that infantilism persists longest about the functions of sleep in the otherwise supposedly normal individual.

The impulsive fetal movements begin about the twelfth week of gestation so the brain cannot be involved *per se* in their genesis, and further, it is known that brainless embryos possess impulsions. There is a short period just before birth in which the amniotic fluid and the uterine wall greatly inhibit a free play of these impulsive movements, but they begin again with renewed activity in the newly born and, as before suggested, are slowly inhibited by voluntary control at the end of the nursing

period. We do not know just how the impulsive movements are incited further than we surmise that, being of the first, simplest, and ontogenetic type of activities of the developing organism, their incitor is from the motor centres of the lower order. In these latter structures are stored up a certain quantity of potential energy which is transformed into actual energy by the blood and lymph stream. With the general increasing tissue growth and tension engendered thereby the energy finally finds its outlet in these random movements of the fetus and infant, and in their exaggerated, distorted presence in the grand mal convulsions in epileptics.

Space prevents us from outlining more in detail the essential distinguishing characteristics of the impulsive from the instinctive, reflex, and conscious or ideational movements of the infant; this has been done most carefully by Preyer and later correlated into a recent study by Canestrini. Suffice it to say, the newer studies of the meaning of the convulsive part of the epileptic fit makes renewed and careful study of all these impulsive movements of the nursing doubly necessary. It will then be found desirable to note their exact relationship in reference to the psychosexual development and its defects as shown in the infantileism of the epileptic.

Further to outline our thesis: As might be expected, the number of impulsive movements is not great. They may be schematized as those of outstretching and bending of the arms and legs of the newly born. The movements are sometimes so quick as to resemble the cloni of a fit (as I mentioned in my own observation). They may be slow, then fast, and finally slow. They may be so slow as to resemble the tetanoid spasm of a beginning focal seizure. Preyer speaks of the muscles involved in the impulsive acts as possessing such a slow crawling movement that the acts present a striking resemblance to the extension and flexion of the limbs of animals suddenly waking from their winter sleep. Such animals, like sleeping children, seen even in the first half of the second year, make genuine fetal movements, which often look as though they are directed against some invisible resistance. This all suggests many of the striking impressions one gains in observing the convulsions of epileptics. Convulsive motion in the infantile impulsions, however, is not generally so frequent in sleep as slow contractions. The latter are frequently attended by spreading and bending of the fingers, which in turn become the rarer toward the end of the second year in all children of sound nervous systems. All these impulsive movements, in the hands, especially, are asymmetrical in outline.

What are some of the depressors and incitors of these impulsive movements? Profound and quiet sleep reduces them to the minimum. Satiation by food greatly curtails them. On the other hand, a duplication of the intrauterine state by the use of the warm bath encourages them. The movements are then usually slow, rather rhythmic, and graceful. One may even see in them the beginnings of an expression of pleasure. The face may join in the picture of contentment with slow asymmetric contortions, which semblance has an odd mixture of pleasure with more than a hint of displeasure.

The greater part of the impulsions, however, are purposeless, senseless, and asymmetric, and found over the entire body from the first day of birth. Writhing and twisting of the body are also frequent accompaniments of the movements of the face and the extremities. Just as the infant sinks into deep sleep, these impulsive movements slow down and the body usually comes to a state of rest in the fetal position. The fetal posture in the legs is kept longer in advancing child life than that of the head and upper extremities. Many writers have called attention to the fact that no one could consciously duplicate these acts. Then, too, one is strikingly impressed that the infant and the epileptic alike are little fatigued by these most intense and persistent impulsions, which speaks strongly for the unconscious motivation in both activities. Probably in both subjects the fund of reserve energy is greater than that of the normal adult person as ordinarily expressed in daily activities. Biologically speaking, we know that the essential vital energy of an individual is probably at its maximum at birth.

One may conclude that the convulsion is made up, or flows out of the general libido striving of the fetal and infantile tissues as expressed through the lower spinal centres, inducing simple and crude combinations of impulsive movements which are from that infantile or fetal period to which the adult epileptic libido would seek to return. Therefore the two main settings in the epileptic fit, unconsciousness and convulsions, are psychic and physical correlates respectively, and the epileptic convulsions are in their essential pathogenesis an error or arrest in the fundamental elaboration or development of the psychosexual libido.

If there be such a close parallelism between the motivation of the fit and the dream, one may ask: Why is the latter so easily recoverable to everyday consciousness, while the content of the fit is obtained only with difficulty, and even then only in the milder attacks or in those which are incomplete or irregular in character? One should bear in mind the essential difference in the two phenomena. In the dream the wish with its essential sexual nucleus receives its intense dramatization when no insistent demand of the wish calls for the subject's actual motor fulfillment; just so soon as that occurs or is permitted, the individual usually awakens in fulfilling the act and the dream is at an end. Not so in the fit; the motivation compels action of the most intense pathological sort; it is in itself the fulfillment and the libido is more or less completely discharged and satisfied. Much of the dream is made up of the longing and teasing characteristics of the forepleasure, a state of heightening of the libidinous tension, while the fit is the actual accomplishment of a libidinous discharge. The very complete satisfaction of a severe fit to the epileptic individual corroborates this view. If one doubts the truth of this contention, he needs but to apply large doses of sedatives abruptly in a frankly severe epileptic state and witness the subject's distress in the sudden withdrawal of his outlet by way of convulsive attacks; the state of unrest is the more distressing in proportion as vicarious appeasement of the nervous tension (libidinous) by means of work, special gymnastics, packs, cathartics, lowered diet,

and massage, is withheld. Again, one must bear in mind that not all epileptics may show the so called epileptic characteristics as soon as their libidinous outlets by way of attacks are closed up. One must, however, take into account that there is as wide a difference in automatic capacity for vicarious discharges of the libido in subjects of this malady, as in normal individuals. The general clinical correctness of our view, however, is of such common experience that of late most writers have urged physicians not to give such doses of sedatives as will entirely and abruptly suppress the attacks, for the reason that the latter seem to carry off certain products from the system more or less necessarily or advantageous to the health of the epileptic.

Up to this point in the thesis we have sought to show: That the epileptic is possessed of a particular type of constitutional makeup which antedates the occurrence of the first epileptic fit; that this makeup is predominatingly infantile in the emotional sphere of development; that the affective defect is due to infantile psychosexual immaturity; that the latter is largely due to early libidinous fixations on the mother or father and also may possess secondary but lesser fixations in other stages of sexual evolution on its way to adult heterosexuality; that the fit is essentially a libidinous outlet or striving of the unconscious forces, which, though widely variant, yet possesses many of the characteristics of the dream language and motive; all the epileptic manifestations are in harmony with each other, flow out of the disease and are reciprocal and comparable as a whole.

We shall now undertake to show the practical uses to us of such studies in prognosis and treatment, and also suggest future lines of analytical research to solve some of the riddles of this disease. It would seem in future that the prognostic points in any given case of epilepsy should be based largely upon the degree of defect in infantilism, the rigidity of libidinous fixation, and the readiness with which the individual epileptic may be induced to assume a proper adaptation to adult emotional life. This latter problem is largely the main issue in all the psychoneuroses. The physical handicaps of defective metabolism, such as constipation, mucocolitis, and the so called autointoxication, need also to be considered; the latter act in the essential epilepsies only as contributing and exciting factors in undervalitized individuals who do not arise from hardy family stock. The truth of this statement may be shown in that the majority of epileptics have some disorder of metabolism, but when the same has been overcome, the epilepsy in the larger number of such individuals still endures. For a long time we have all unconsciously given a better prognosis in the individual case of epilepsy just in proportion as he assumes responsibility for a rational life, attends without compulsion to his diet, his baths, and exercise, becomes genuinely interested in his educational and industrial progress, and finally makes these activities balance rationally with his capabilities and ambitions. In short, the prognosis in a given case is good—not from the cessation of fits alone, however valuable an index to proper adaptation this may be, but is proportionate to the degree to which individual ado-

lescent may be made to develop. With this view in mind one can understand how desirable the earliest treatment becomes, at the initial stage of the disease and in youth when the whole libido is most flexible. Yet the prognosis is naturally worse in those in whom the defect in adaptation is shown in early life, because of the relatively slight strain or stress found necessary to induce the particular individual to follow an epileptic habit or career in order to balance his abnormal expenditure of libidinous energy. The prognosis is therefore all a question of early and adequate physical and mental adaptation. In a survey of all my arrested or cured cases, in some thirty-five of which I have careful and complete notes, the details of which will be presented at another time, I find that as the cure advanced the main trends of intellectual interests and occupation moved to more normal grounds, just as rapidly as the epileptic individual became more emotionally stable and lost the characteristics of immaturity, the childish dependence and inferiority of the psychosexual life. In these recovered cases they divorce the mother voluntarily, they cease demanding childish pettings, caresses, the mental and physical sweets of everyday life, and take on independence and trustworthiness and employ their energies in suitable work, exercise, and play, proportionate to their age and station in life.

(To be continued.)

THE APPLICABILITY OF BINET-SIMON INTELLIGENCE TESTS IN PSYCHOSES OF THE SENIUM.

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The appearance of the Binet-Simon intelligence tests in 1908 gave a new impetus to the study of mental defectiveness in children. In this country particularly, owing to the efforts of Doctor Goddard to adopt this measuring scale of intelligence to American school children, the study of mental deficiency has advanced by leaps and bounds. Nevertheless the great mass of literature which has appeared on the subject is sure to convince anyone that we are still far from unanimity of opinion concerning the dependability of these tests. Most, if not all, at least agree that these tests, especially Doctor Goddard's revision of 1911, possess considerable value in estimating the intelligence of a given individual, but the opinion is no less prevalent that even this latest revision could be improved upon.

Most of the adverse criticism may be summarized in the objection that these tests as they stand today take into account only a certain phase of human mentality, namely, pure intelligence. While this is a valid criticism, it is very doubtful whether a set of tests will ever be evolved which will go further. In the last analysis we must come to agree that the human mind, with all its complex phenomena, lends itself very poorly to analysis by means of a given set of tests.

There has not been enough done thus far with these tests in the psychoses to justify one in draw-

ing conclusions, but it seems that, particularly in those mental disorders which may manifest themselves preponderantly in a simple reduction of intelligence, these tests might be of some value. This is especially true of the psychoses of the senium. One not infrequently sees cases of mental enfeeblement in the aged without any actual psychotic manifestations, and the question arises, Would the application of the Binet-Simon intelligence tests have helped us in diagnosing these cases before gross conduct disorders, say those incident to delusions and hallucinations, make the mental disease obvious? That such an early diagnosis may have considerable practical importance cannot be doubted, especially if one keeps in mind the question of testamentary capacity which so frequently comes up in the aged.

It is with this aim in view that the following experimental study was undertaken. The material consists of thirty patients, all inmates of the Government Hospital for the Insane. With the exception of two, all were admitted to this institution after the sixth decade of life, suffering from mental disorders due to senile involution. Only a few of them suffer at present from any of the delusions or

During the course of the experiment two other important questions relative to the reliability of the Binet-Simon scale became apparent: 1. The question of the value of these tests as a differentiating medium between senile dementia and dementia, dependent upon cerebral arteriosclerosis; 2, fairly convincing evidence was obtained of the necessity for a further revision of these tests.

In the experiment herein reported it was attempted to follow Doctor Goddard's version of 1911. All the results were evaluated according to the rules laid down by him with the exception of the time factor, which had to be abandoned in dealing with the individuals of this nature. Besides, the opinion is quite unanimous that altogether too much stress is being laid on the element of time in the report of the Binet school. For the convenience of the reader, a copy of questions used at the Government Hospital for the Insane is appended. The results obtained are grouped in four tables which will be discussed separately. All of the patients examined passed the third, fourth, and fifth year and therefore tables begin with the sixth year. The material consists of the following types of individuals as shown in Table 1:

TABLE I.
Apparent time of onset.

	Age on admission.	Present age.	Education.	Occupation.	Apparent time of onset.	Cause of commitment.
1	82	84	Fair	Driver	6 years ago	Excited, homicidal, irritable.
2	78	80	Fair	Soldier	2 weeks	Imperfect comprehension, delusions of persecution.
3	68	68	Com. Sch.	Farmer, soldier, Police officer	2-3 years	Irritable, loss of memory.
4	76	77	Fair	Printer	3 weeks	Delusion that police are after him; chosen son of God.
5	65	66	Fair	Farmer, soldier	3 months	Depressed, suicidal.
6	77	78	Good	Machinist	4 months	Failure of mental faculties, loss of memory, confusion.
7	88	88	High Sch.	Gardener, sheriff, Watchman	Past 12 years	Confusion, poor memory, irritable, lack of attention.
8	82	73	Fair	Laborer	4-5 weeks	Hallucinations of sight and hearing, poor memory, loses his place.
9	65	66	Good	Carpenter	1 year, due to alcohol	Irritable, delusions of grandeur and persecution.
10	58	60	Good	Soldier	1-2 weeks	Irritable, excitements, delusions of grandeur.
11	67	69	Good	Laborer	1 month	Delusions of persecution, electricity, etc.
12	71	73	Poor	Laborer	10 years(?)	Seclusive, stubborn, irritable, disobedient.
13	66	67	Poor	Driver	1 month	Disoriented and hallucinations.
14	70	72	Moderate	Tailor	3 weeks	Loss of memory, delusions of persecution.
15	73	76	Fair	Carpenter	(?)	Delusions of persecution.
16	60	62	Good	Clerk	Few weeks	Irritable, slight excitements, delusions of persecution.
17	64	65	Poor	Laborer	(?)	Delusions of persecution, confusion, lack of concentration.
18	74	74	Good	Soldier, laborer	2 years	Irritable, delusions of persecution.
19	72	72	Good	Carpenter	(?) Followed attack of epilepsy	Delusions of persecution, disoriented, confusion, irritability.
20	74	76	Good	Laborer, farmer	1 month	Excited, irritable, delusions of persecution.
21	75	77	Poor	Tailor	1-2 weeks	Poor memory, depressed, suicidal.
22	73	75	Good	Horseman	About a year	Quarrelsome, disobedient, excited, grandiose and persecutory delusions.
23	64	66	Poor	Teamster	2 years	Delusions of persecution, imagines he is a great detective.
24	54	67	Good	Shoemaker	Few months	Auditory hallucinations and delusions of persecution.
25	59	61	Good	Waiter	3-4 weeks	Confusion, loss of memory, auditory hallucinations.
26	65	67	Poor	Farmer	(?)	Wanders about, mental faculties very poor.
27	68	70	Good	Stone cutter	3 months	Confusion, auditory hallucinations.
28	62	63	Fair	Butcher	6 months	Delusions of persecution, auditory hallucinations.
29	74	75	Fair	Farmer	6-10 months	Very emotional, confusion, delusions of grandeur.
30	72	74	Good	Soldier		Memory loss, confusion, disorientation, irritable.

hallucinations mentioned in the respective medical certificates upon which they were admitted to this hospital. Conduct disorder of any sort is at present manifested by but few of them, and about seventy-five per cent. at present enjoy the privilege of walking about the reservation unsupervised. Yet, as will be shown later, none of these individuals reached a psychological age of over twelve years (according to the Binet-Simon intelligence tests).

In order to avoid any possible effects of fright, embarrassment, etc., only those patients were chosen with whom I had been in personal contact for about a year, and who were absolutely free from any defect of sensory organs, such as eye and ear.

Age.

The youngest patient examined was fifty-four years old while the oldest was eighty-eight. With the exception of one other, aged fifty-eight, the remainder were over sixty years of age, as follows:

Between 60 and 65 inclusive.....	7
Between 66 and 70 inclusive.....	6
Between 71 and 75 inclusive.....	10
Between 76 and 80 inclusive.....	3
Between 81 and 88 inclusive.....	2

Education.

Fair—Embracing an education of four years.....	10
Good—Embracing an education of common school.....	12
Very good—Embracing an education of high school.....	1
Poor—Embracing an education of up to three years....	7

Occupation.

Common Laborer	9
Soldier	7
Printer	7
Waiter	1
Machinist	1
Carpenter	3
Clerk	2
Shoemaker	1
Stonecutter	1
Sheriff	1
Farmer	3

Duration of Disease on Admission.

Less than one month	7
Between one and three months	7
Between three and six months	2
Between six months and one year	2
Between one year and five years	4
Between five years and ten years	3
Not known	3

Cause of Admission.

Failure of mental faculties plus confusion.....	9
Excited, irritable and grandiose.....	8
Paranoid conditions (delusions of grandeur and persecution).....	8
Depressed and suicidal.....	2
Excited, irritable, homicidal.....	1
Hallucinatory confusion.....	1

symptoms in each case, those which were the cause of the patients' certification.

Table II shows graphically the results obtained, giving, beside the psychological age attained in each instance, the number and kind of tests passed in each year. A comparison of Tables I and II shows the interesting fact that the patients who had a poor education made a fairly good showing. On the contrary, the patients who supposedly had the best education reached the ninth year, the same as the average of the poorly educated.

Neither age nor occupation bears any relation to the intelligence of these patients. The only real factor is the duration of the psychosis—the longer the disease the more pronounced the retrogression. An examination of the results will leave little doubt in any one's mind that a person unable to comprehend a question, for instance question 4 in year 10 (comprehend special sentences) or see the absurdity in question I, year II, must be suffering from a mental disorder in which defective intelligence is the predominating symptom, and yet there can be little doubt that these people were able to pass this scale before the onset of their mental disorder.

TABLE II.
CORRECT REPLIES IN CORRESPONDING YEARS.

Serial No.	Case No.	Sixth year.	Seventh year.	Eighth year.	Ninth year.	Tenth year.	Eleventh year.	Twelfth year.	Fifteenth year.	Psychological age.
1.	19120	1, 2, 3, 4, 5	1, 4, 5	1, 5	3, 4	1, 4				
2.	19110	1, 2, 3, 4, 5	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2		2, 3	7	0
3.	19170	1, 2, 3, 4, 5	1, 2	4, 5	1, 2, 4	1		0	4	8½
4.	20055	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 3, 4	1, 3, 4, 5	1, 3, 4, 5	1, 2	4	10½
5.	20055	1, 2, 3, 4, 5	1, 2, 3, 5	2, 3, 5	1, 2, 3, 4	1, 3, 4	1, 3, 4	2, 5	9	4
6.	20062	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 5	1, 4, 5	1, 3, 4, 5	0	2	4	9
7.	21310	1, 2, 3, 4, 5	1, 2	1, 2, 3, 5	1, 2, 4	1, 3, 4, 5	1, 2, 3	1, 2	4	9½
8.	21086	1, 2, 3, 4, 5	1, 2, 4, 5	1, 2, 3, 5	1, 3, 4	1, 3, 4	1, 4	2, 4	4	9
9.	20316	1, 2, 3, 4, 5	1, 2, 4	1, 2, 3, 5	1, 1	1, 2, 3, 5			3	11
10.	20224	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4	1, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 5	8	11½
11.	20821	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 3, 4	1, 3, 4, 5	2, 3, 4, 5	1, 2, 3	1, 4	11
12.	20234	1, 2, 3, 4, 5	1, 2, 3, 4, 5	3, 5	3, 4	1, 3	0	1	1	7½
13.	21030	1, 2, 3, 4, 5	1, 2, 4, 5	1, 2, 3, 5	1, 3, 4	1, 3	1, 4	1, 2	1, 4	4
14.	19714	1, 2, 4	1, 2	1	0	0	0	0	0	6½
15.	19190	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4	1, 3, 4, 5	2, 3, 4, 5	1, 2, 4, 5	4	11½
16.	19581	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4	1, 2, 3, 4, 5	1, 2, 5	2, 5	1, 4	11
17.	21001	1, 2, 3, 4, 5	1, 2, 4, 5	1, 2, 4, 5	1, 3, 4	1, 2, 4	0	2	3	8
18.	21405	1, 2, 4, 5	1, 2, 5	2, 3, 4, 5						
19.	21110	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 4, 5	1, 3, 4, 5	1, 2, 4, 5	1, 2, 5	1, 4	11
20.	20122	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4	1, 3, 4, 5	1, 2, 3, 4	2	1, 4	11½
21.	20037	1, 2, 3, 4, 5	1, 2, 5	1, 2, 4, 5	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 4	11
22.	20106	1, 2, 3, 4, 5	1, 2, 5	1, 2, 3, 4, 5	1, 1	1, 3, 4	0	2	1, 4	9½
23.	20217	1, 2, 3, 4, 5	1, 2, 4, 5	1, 2, 3, 4, 5	1, 2, 3	1, 3, 4	4	2	1, 4	8
24.	19316	1, 2, 3, 4	1, 2, 4, 5	1, 3, 5	1, 4	1, 3	0	2	4	8
25.	20359	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4	1, 4	1, 3, 5	2	1, 4	11
26.	19890	1, 2, 4	1, 2	1, 3				2, 5	4	7
27.	20120	1, 2, 3, 4	1, 5	3, 4, 5	1, 3	1, 4	0	2	4	8
28.	20088	1, 2, 3, 4, 5	1, 2, 4, 5	1, 2, 3, 5	1, 3, 4	1, 3	0	2	4	9
29.	20184	1, 2, 3, 4, 5	1, 2, 3, 5	1, 2, 3, 5	1, 3	1, 3	1, 4, 5	1, 5	4	9
30.	20333	1, 2, 3, 4, 5	1, 2, 3, 4, 5	2, 3, 4, 5	1, 2, 4	1, 3	4, 5	4	4	9

TABLE III

REPRESENTING GROUPS OF PSYCHOLOGICAL AGES

Sixth year and over.....	1
Seventh year and over.....	2
Eighth year and over.....	3
Ninth year and over.....	4
Tenth year and over.....	5
Eleventh year and over.....	6

TABLE IV

Year.	Question.				Total correct replies.	Pro- portion.	
	1.	2.	3.	4.			
Sixth	30	30	47	20	26	142	94%
Seventh	29	26	11	18	21	165	76%
Eighth	24	18	25	13	25	103	70%
Ninth	23	16	14	20	4	78	52%
Tenth	30	5	25	8	16	88	58%
Eleventh	10	9	12	13	0	44	29%
Twelfth	8	24	1	5	7	45	30%
Fifteenth	0	0	0	28	7	35	30%

The data in the last rubric were gathered from the medical certificates, and at best cannot be looked upon as absolutely reliable. The grouping into the various pictures is based upon the most prominent

Reduction of the intelligence is in many instances the first indication of a beginning of mental disorder in the aged, and in the absence of other symptoms, such as gross disorders of conduct, we must rely for a diagnosis almost exclusively upon tests which investigate intelligence. Not only is the reduction of the intelligence the first predominating symptom of this form of psychoses, but it is constantly present and materially progressing with the disease, even when the active psychotic symptoms become quiescent. We encounter such people in our daily routine of life. We notice their peculiar business transactions, we see them squander their fortunes, make wills, etc., and yet we do not stop to think that these people are defective. A child showing a similar degree of defectiveness would usually be committed to an institution or have a legal guardian appointed, yet these people are allowed to mingle freely with others until they be-

come a menace to the community. It would be only proper that when a person of such age begins to act peculiarly, becomes careless in his business affairs, or shows reduced intelligence, he be examined by a similar scale and be regarded in the community as a minor, whether or not he shows a degree of mental disorder which would make him legally certifiable.

None of these patients reached a psychological age of twelve, and although most showed a psychological age of nine, yet in comparing the extreme of these patients, we may be able with the aid of summaries of these cases to see the possibility of the scale as a factor in differentiating between arteriosclerosis and senile dementia.

CASE I (19,620). This patient was admitted in 1906, aged seventy-six years. History of that time showed that while driving his team he fell off, and was rendered unconscious. He did not regain consciousness for about two or three weeks. The constant watching of his wife, who tried to keep him in the house, greatly excited him and he grabbed a knife which she held, and after inflicting several injuries, proceeded to use the weapon on himself. However, he stated he did not remember anything of that sort, and was only told about it. Mental examination¹ at that time showed him well oriented, but memory for recent and passed events impaired. Thinking was at times difficult. He appeared suspicious as though in fear of an attack. At times he seemed to be suffering from auditory hallucinations. This patient remained in the hospital for about seven months and eloped to his home. He remained home until 1912, when he was again committed to this hospital for threatening people with a revolver. At this time he was well oriented, no delusions or hallucinations were present, memory was very poor, intelligence tests poorly done. He was very irritable and quarrelsome. This patient at present is enjoying good physical health. No marked change in his mental condition. He is still irritable, stubborn, and has slight periods of excitement.

CASE XII (20,314) (909). Farmer. Patient was admitted in 1904. At that time he gave his age as fifty-eight (?) years. He suffered from delusions rather of grandiose type, that the government was making and taking loans of him. This patient eloped in the same year, and was readmitted in 1912. Medical certificate stated that patient acted peculiarly and refused to obey commands, was stubborn and very seclusive. Mental examination showed him fairly well oriented. Memory for recent and past events impaired. No delusions or hallucinations were elicited. Intelligence tests poorly done. This patient showed no marked change after his admission. He is still seclusive, not seen to associate with his fellow patients. However, he is not quarrelsome as mentioned above. Here he spends his time in idleness. Will always want things in his own way and will seldom obey orders. He is still irritable and at times excited, which subsides within a few days.

CASE XIV (19,714). Tailor. Admitted February, 1912, aged seventy years. Medical certificate stated that a week previous to his admission he went to the police and complained about various judges refusing to help him collect money. Mental examination showed him poorly oriented in all spheres. Memory was poor. Had no insight into his condition. Had delusions mentioned in previous medical certificate. This patient continues to remain the same at the present notation. He is indifferent. Manifests no interest in his surroundings. He is still suffering from delusions. He has not changed his place in the ward for the last year. Always greets the physician cheerfully whenever he makes rounds, but never speaks to anyone. Replies in childish manner.

CASE XXVI (19,899). Farmer. Admitted May, 1912, aged sixty-five years. Medical certificate accompanying this patient stated that the patient wept easily, could not find his bed or place at the table. Mental examination showed patient to be disoriented in all spheres. Memory impaired for all events. No insight, no delusions nor hal-

lucinations were elicited. Intelligence tests poorly done. This patient has shown very slight change. He does not associate with fellow patients. Greets the physicians and nurses very cheerfully. Emotionally, he is unstable and has childish attitudes and behavior.

Here we have four cases who made the lowest psychological age, falling into two distinct types of mental disease, one manifesting symptoms of irritability, stubbornness, excitement, and depression, the other showing a simple senile deterioration, as wandering about, confusion, childish attitude and manner. Opposing these we have four cases which reached the highest mental age, showing the following type of psychosis.

CASE X (20,224). Soldier. Admitted to this hospital in October, 1912, aged fifty-eight years. Medical certificate stated that the patient used alcohol. Had delusion that God had instructed him to do certain work. Was peculiar at times, and comrades noticed that he acted strangely. He was also melancholy at times and at other times very excited. Stood motionless for long periods of time, refusing to answer questions or to speak. Subject to periods of excitement. Mental examination at this time showed him to be oriented in all spheres. No marked memory impairment. No other delusions could be elicited. Special intelligence tests well performed. At present after two years' stay, there is a slight change. He still states that while in the Soldiers' Home he was hypnotized, etc., but has not heard from God while here. Emotionally he is indifferent. He is seclusive. Has shown only at times slight excitement, but is rather indifferent to his surroundings. He seldom associates with his fellow patients, and is rather resistive to ward routine and commands.

CASE XV (19,190). Aged seventy-three years. Admitted to this hospital May, 1911. Medical certificate stated that patient gave history of being boycotted by labor unions eight years ago, and since then he has been driven from place to place and persecuted in every conceivable manner. At present he believes that there is a systematized conspiracy between labor unions and Catholics to persecute him, also some have made attempts to have him assassinated. Mental examination showed him to be well oriented; there was no gross impairment of memory. No other delusion could be elicited, other than mentioned in medical certificate. Intelligence tests well performed. During his residence in this hospital he has not occasioned any trouble, although he will fuss at times with some other patients about him. Often he is stubborn and will want his own way and refuse to obey rules of the hospital.

CASE XVI (19,981). Clerk, admitted May, 1912, aged sixty years. Medical certificate stated that patient was suffering from delusions of persecution, said that the major and deputy governor of the home were going to have him killed. Mental examination showed him to be well oriented in all spheres. Emotionally indifferent. Delusions and hallucinations present. Memory showed slight impairment. Special intelligence tests fairly well done. There was slight change in this patient's condition during his entire stay in this hospital. He did not associate with his fellow patients, and spent his time reading or walking on the lawn. At times he was very irritable, but did not show any marked excitement. Patient, while out on the grounds one day, complained of being sick. Investigation showed him to be suffering from a cerebral hemorrhage. He died two days later. Post mortem examination revealed a pontine hemorrhage. There was a sclerosis of basal vessels.

CASE XX (20,122). Second admission August, 1912, aged seventy-four years. Previously in this hospital, 1911. Medical certificate on first admission showed patient to be untidy, abusive, and pugnacious. Patient was picked up in the streets, wandering about, not knowing what he was doing. He was discharged in June, 1911, as not insane. Alcoholic. On the second admission his medical certificate stated that patient manifested delusions of persecution; thought that the attendants wanted to poison him. Mental examination showed him well oriented, memory for recent events slightly impaired, good for remote events. He gave no evidence of any hallucinations nor delusions. Special

¹Mental examination scheme in White's *Outlines of Psychiatry*, fourth edition, used in this hospital.

intelligence tests were fairly well performed. This patient is at present not suffering from any excitement or depression. He makes a good impression to the observer, and is really a fit subject to be out on the outside world had he a home and responsible people to look after him.

Clinically these last four cases are typical of the cerebral arteriosclerotic type of dementia. In one of these the diagnosis has since been confirmed by autopsy. On comparison of these two sets of cases, namely the four which reached the lowest grade with the four which reached the highest psychological age, we find that the latter all belonged to the arteriosclerotic type of dementia, while of the former two belonged to this group and two to senile dementia. If any conclusions are to be drawn concerning the reliability of these tests as a differentiating medium between arteriosclerotic dementia and senile dementia, the reason for the two arteriosclerotics who showed the lowest mental age must be discussed. Reference to Table I shows that in one of these cases the duration of the disease was six years, while in the other it was ten, a circumstance which is sufficient to explain the reason of the profound degree of deterioration. Thus consideration of these two cases showed that the highest grades were made by the arteriosclerotics, while the lowest were by the senile demented, findings which agree with the clinical psychiatric conceptions of these disorders.

The two arteriosclerotics of low mentality above referred to, were admitted to this hospital in a very excited state, and showed signs of dementia, and with the disappearance of the active psychotic disturbances were allowed the privilege of the grounds, and ultimately escaped. Both got along well at home until the disease reached the stage when it was inadvisable for them to be at large, when they were recommitted to this hospital. A similar history is characteristic of most of those who reached a high psychological age. Being free from gross conduct disorders they could, even though intellectually reduced, get along outside an institution under proper supervision. The important thing is to recognize that they have the intelligence of a child and require a similar degree of supervision.

In discussing the psychology of the Binet-Simon scale in children, Terman states: "Of course these tests do not pretend to measure or to test the entire mentality of the child, but only intelligence. There is no pretence of testing the emotion or the will except so far as these naturally display themselves in the tests of the intellect. This at once restricts the use of the scale very greatly. It is not a tool for the analysis of those emotional or volitional aberrations which lead to a mental disorder, except so far as these involve disturbance of intelligence." Nevertheless, even with these restrictions, we believe that they may be of service in differentiating between arteriosclerosis and senile dementia, especially in the early stages.

Table IV illustrates wherein a revision of the Binet-Simon tests is urgently needed. Binet and his coworkers found it necessary to shift these tests. He found that these tests in the years 11, 12, and 13 were entirely too difficult for that age, and therefore there followed the present scale. Is this scale as it stands in its 1911 form a perfect standard? I

venture to say "no," basing my contention on the results illustrated in Table IV.

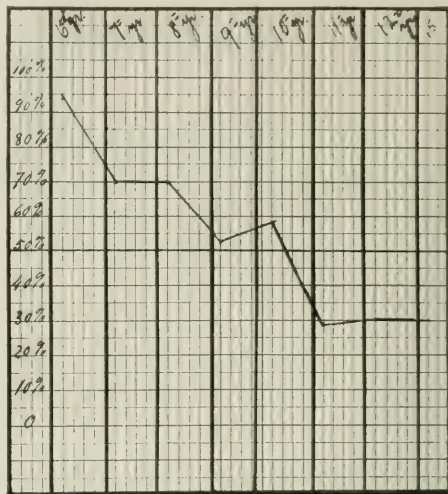


Chart representing the decline in total correct replies in the scale.

Age 6 in the scale begins with ninety-four per cent. correct replies, which under the circumstances should have reached this high percentage, considering the type of material, and it would seem that the tests in this year are as nearly perfect as possible. With a correct standardized scale we ought to expect corresponding decline in correct replies. Results obtained here are far from expectations. The years as they ascend show such different variation, and if a diagram was drawn, it would be as shown in the accompanying chart.

Ages 7 and 8 showed the same percentage of correct replies, namely seventy per cent. This may not be of great importance in dealing with this type of individuals, but in examining children it must be obvious that the tests in these two years are not correctly graded. I shall not discuss the results to the rest of the tests, for the reader is referred to the scale in Table IV and note the variation and instability throughout. Such variation in the scale certainly points to errors in the arrangement of the various tests for the corresponding years.

The criticism may be advanced that these tests are not intended for these people and therefore results obtained have no bearing on the measuring of intelligence in children, and the results with these seniles could not be correct. But all studies on this work have shown that even with children the 1911 scale is imperfect. Berry in one of his recent publications speaks as follows of these tests: "The fact that Binet in the revised scale has placed all these tests except one, which were under 11, under age of 12; the tests which were under age 12, he has put under age 15; and three tests which were under age 13 he has made tests for adults, shows clearly that he thought that this part of the scale be least reliable. It is evidently very im-

portant, that these tests under higher ages be thoroughly tried out before we place much confidence in them as a means of determining the intelligence of an individual. . . ."

In order to correct the scale we must make use for this purpose of children whose normality is beyond dispute. Shall we pick out children by this inaccurate scale and say they are normal, when everyone agrees that the scale as it is now is subject to more or less error?

QUESTIONS USED IN THE EXAMINATION OF PATIENTS AT THE GOVERNMENT HOSPITAL FOR THE INSANE, WASHINGTON, D. C.

Name..... No..... Admitted.....

III.

- 1 Points to nose, eyes, mouth.
- 2 Repeats "It rains. I am hungry."
- 3 Repeats 7 2.
- 4 Sees in Picture 1. 4. 5. 6.
- 5 Knows name. 3.

IV

- 1 Knows sex, boy or girl. (Girl or boy.)
- 2 Recognizes key, knife, penny.
- 3 Repeats 7 4 8
- 4 Compares lines.

V

- 1 Compares 3 and 12 grams. 6 and 16 grams.
- 2 Copies square.
- 3 Repeats, "His name is John. He is a very good boy."
- 4 Counts four pennies.
- 5 "Patience."

VI

- 1 Morning or afternoon (afternoon or morning).
- 2 Defines fork table horse mama
- 3 Puts key on chair; shuts door; brings box.
- 4 Shows R. hand. L. ear.
- 5 Chooses prettier? 1 & 2. 4 & 3. 5 & 6.

VII

- 1 Counts 13 pennies.
- 2 Describes picture. (See III 4.)
- 3 Sees picture lacks eyes, nose, mouth, arms.
- 4 Copies diamond.
- 5 Recognizes red, blue, green, yellow. (Time 6")

VIII

- 1 Compares (Time 20").
Butterfly Wood Paper
Fly Glass Cloth
- 2 Counts backward 20-1. (Time 20").
- 3 Repeat days. M. T. W. T. F. S. S. (Time 10").
- 4 Counts stamps. 111222. (Time 10").
- 5 Repeats 4 7 3 9 5.

IX

- 1 Makes change 20c—4c.
- 2 Definitions (see VI 2).
- 3 Knows date.
- 4 Months. J. F. M. A. M. J. J. A. S. O. N. D. (Time 15").
- 5 Arranges weights. (2 correct.) (1 min. each.) 1. 2. 3.

X

- 1 Money 1c. 5c. 10c. 25c. 50c. \$1. \$2. \$5. \$10.
- 2 Draws design from memory. (Show 10").
- 3 Repeats 8 5 4 7 2 6. 2 7 4 6 8 1. 9 4 1 7 3 8. (1 out of 3 correct.)
- 4 Comprehends.
(1st Series time 20") (2d Series time 20")
(2 out of 3) (3 out of 5)
a. (Missed train.) a. (Late to school.)
b. (Struck by playmate, etc.) b. (Important affair.)
c. (Broken something.) c. (Forgive easier.)
d. (Action opinion.)
e. (Actions vs words.)
- 5 Sentence: Philadelphia, money, river. (Time 1')

XI

- 1 Sees absurdity. (3 out of 5.) (Time 2')
- a. Unfortunate painter. d. R. R. accident.
- b. Three brothers. e. Suicide.
- c. Locked in room.
- 2 Sentence: Philadelphia, money, river. (See X 5.)
- 3 Gives sixty words in three minutes.
- 4 Rhymes (Time 1' each.) (3 rhymes with each word.) (All correct.)
day mill
spring
- 5 Puts dissected sentences together. (Time 1' each.) (2 out of 3 correct.)
a. b. c.

XII

- 1 Repeats 2 9 6 4 3 7 5. 9 2 8 5 1 6 4. 1 3 8 5 8 4 7. (1 out of 3 correct.)
- 2 Defines Charity Justice Goodness
- 3 Repeats, "I saw in the street a pretty dog. He had curly brown hair, short legs, and a long tail."
- 4 Resists suggestion (lunch). 1. 2. 3. 4. 5. 6.
- 5 Problems: (a) Hanging from limb. (b) Neighbor's visitors.

XV

- 1 Interprets picture.
- 2 Changes clock hands. (a) Twenty minutes past six. (b) Four minutes of three.
- 3 Code. COME QUICKLY.
- 4 Opposites.
1 good 3 quick 5 big 7 white 9 happy
2 outside 4 tall 6 loud 8 light 10 false

ADULT

- 1 Cutting paper. (Draw.)
- 2 Reversed triangle. (Draw.)
- 3 Gives differences of abstract words.
- 4 Differences between president of a republic and a king.
- 5 Gives sense of a selection read.

Thoroughly studying the various questions in detail, the first one to attract our attention is question 3, in age 7 (incomplete pictures). It is this question that disturbs the normal ratio between it and the preceding year. Defective vision may be thought of; but detailed examination of replies shows only a very few missed the entire question, but they were marked according to the rules, and as it requires three out of four responses to this test to get the entire question correct, only a few of them were able to pass it. Furthermore, question 2 in the same year (describing pictures) requires vision, and here we have twenty-six correct out of thirty replies. Therefore defective vision cannot be alleged against this poor showing throughout the entire scale.

Question 5 in year 9 (weights) was solved correctly only by four out of thirty, and even allowing for the effect of the senile changes in the skin and peripheral nerves, it seems that this test is not very reliable. In writing about this test, Binet and Simon state: "This test is one of those which best detect intelligence, without culture, as it is absolutely independent of all instruction. We also remarked that the kind of intelligence indicated by it, is of a very special nature. There are some children very intelligent otherwise, who fail to arrange these boxes, while others do so accurately and with facility." It seems that these patients lacked the intelligence of which Binet and Simon speak, and that this kind of intelligence of special nature is one of the first to disappear from the mind of the senile, or is this test out of its proper place in the scale?

Year 10 of this scale is very complex. One question gave 100 per cent. correct replies, and question 2 only five correct replies, and it seems the entire year as it stands needs revision, for instead of a decline in percentage, we have gained six per cent. above the preceding year.

Question 1 in the years 9 and 10 should probably be interchanged. The ninth year one where the child is required to make change aside from recognizing coins, is, in my estimation, more difficult than the tenth year one, where only recognition of coins is required, and the results in our patients bear this out.

Year 11 seems to be the most perfect arrangement. The questions in themselves show a very little variation, and the total of correct replies has a fair decline, if only the preceding year would have

shown the same perfect arrangement. However, as it stands it is too difficult. They all made the lowest percentage and no doubt some of the tests, especially 1, 2, and 5, are entirely too difficult for this year. This is very evident when the following year, age 12 has gained one per cent. in total results. But in this year (age 12) it seems that the arrangement of questions is out of place, for we certainly cannot expect as many as twenty-four out of thirty replies to be correct in such an advanced year, when they made such a poor showing in the previous year. This year needs a revision in questions 2 and 3. One is entirely too easy for a twelve year boy and the other seems entirely too difficult (repetition of twenty-six syllables), especially since the sentence chosen is a very complex one. However, as it stands, it needs revision. We may try at first another sentence, but it seems that even so it is too difficult for that year.

Age 15 seems very much out of shape, and this age needs entire revision of all its questions. Questions 2 and 3, and especially the latter, are entirely too difficult for this year, and vice versa; the other two, and especially 4, are too easy.

Thus we see that a good deal of revision is needed in this scale. There should also be one or more scales on the order of the Binet-Simon resembling the latter sufficiently to be used interchangeably with it; then proper tests should be picked out to make a standardized and uniform scale, and perhaps with such scale defectiveness will then be an easy matter to detect.

In conclusion, we may venture to say that with certain reservations the Binet-Simon scale may be of some use in the diagnosis of early cases of mental enfeeblement in the aged, and that even in the absence of those gross disorders of conduct which would justify commitment to a hospital, a definite diagnosis can be made by means of these tests. Furthermore, that these tests will become progressively more fit for the diagnosis of mental defectiveness if the various changes indicated are adopted.

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VINCENT'S ANGINA.*

By MARTIN J. SYNNOTT, A. M., M. D.

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CASE. Miss D., a public school teacher, aged twenty-two years, consulted me, September 21, 1914, about a sore mouth, giving the following history: Two months previously she had had a wisdom tooth extracted. The gum where the tooth was drawn remained sore and did not heal. Later this soreness extended along both gums and into the roof of the mouth. The dentist diagnosed the trouble as a bad case of pyorrhea, and had treated her for this ailment up to the time she came to me. The dentist's treatment had not benefited her, but on the contrary the disease was extending so that she had difficulty in eating, her nutrition was becoming impaired, she was suffering from general malaise, headache, and was getting too weak to continue her work.

Upon examining her mouth, I found a mass of necrotic tissue where the wisdom tooth had been extracted, and an extensive ulceration along the gums at the margin of the teeth, most marked along the upper and lower molars, and at the junction of the jaws. Several small circular ulcers were apparent on the roof of the mouth, and upon the tonsils. There was a thin dirty looking exudate over the lesions, and a fetid odor to the breath. The submaxillary glands were slightly swollen. The tongue was badly coated. The appearance of the mouth strongly suggested syphilis; and I made several smears for the microscope, fully expecting to see *Spirocheta pallida* after staining. Instead, however, I found the typical microorganisms of Vincent's angina; a fusiform bacillus and a spirillum.

The treatment at first was daily direct applications of forty per cent. acetic acid solution, but this gave no improvement. On the contrary, the ulcerative process seemed to extend, particularly over the tonsils. After four or five days I changed to direct applications of undiluted tincture of the chloride of iron, daily, when improvement began at once, and progressed so rapidly that by the end of a fortnight, recovery was complete, and there has been no relapse.

The case was interesting in showing the importance of laboratory investigation. A diagnosis without it would have been almost impossible, whereas the view under the microscope was so typical of Vincent's angina, that there was no room for doubt.

It is maintained by some laboratory men that these two organisms—the spirillum and the fusiform bacillus—are really the same microbe, but in different stages of development. This would explain their being so regularly associated in Vincent's angina. The fusiform bacillus is a large, long, slender, rod shaped, nonmobile organism, slightly swollen in the middle, and tapering off to a point at each end. It stains readily with carbol fuchsin, or any of the carbol violet stains. Carbol methylene blue leaves portions of the organism unstained, unless immersion is kept up for fifteen minutes instead of five. It is also stained by Leishman's method.

The spirillum is large, with undulations few in number and of wide amplitude. The presence of these two organisms together in the smear is characteristic, and when once the combination is seen, it is so readily recognized that it could scarcely ever afterward be mistaken for anything else. There is little difficulty in distinguishing the spirillum from the spirochete of syphilis, although it is not unlike some nonpathogenic spirilla, particularly the buccalis. The Vincent's spirillum stains easily, whereas *Treponema pallidum* stains with difficulty and is colored red by Giemsa's stain. The spirochete of syphilis is smaller, extremely slender, has a low index of refraction, and a characteristic complete corkscrew spiral arrangement, apparent both in motion and in rest. The turns of the spiral are deep, close, and regular. The slough over the lesions in Vincent's angina is a pseudomembrane, due to necrosis of the superficial layers of the mucous membrane, and is not a true exudate, as in diphtheria.

The prognosis of this disease is almost invariably favorable, the fatal cases being exceedingly rare, and usually when they have occurred, have been due to complications such as ulceration of the larynx, bronchopneumonia, toxemia, meningitis, brain, liver, spleen, or ethmoidal abscess. Some two years ago,

*Read before the Clinical Society of the Mountsinclair Hospital, Montclair, N. J., December 3, 1914.

I had a fatal case in my own practice, in a two year old child, in which the infection started in the tonsils. The ulcers did not respond to treatment. The condition of the child rapidly became serious. He began having recurring and severe chills, with pyrexia and profound toxemia, followed by a general pyemia with multiple abscesses in various parts of the body. The pus from these abscesses contained no microorganisms of any kind, cultures upon various media giving no growth whatever. The child had complete anorexia and was kept alive for ten days by gavage, finally succumbing to prostration.

The diagnosis of Vincent's angina depends obviously on the laboratory. Syphilis may be excluded positively by the Wassermann test. The dirty, yellowish or greenish yellow slough, resting on an ulcerated base which bleeds easily, and the fetid odor are said to be clinically characteristic. The low range of temperature and pulse out of proportion to the local conditions are also a help in excluding clinically such diseases as diphtheria and infections due to ordinary inflammations from pyogenic organisms like the streptococcus and the staphylococcus.

The local treatment, in addition to the drugs already mentioned, includes such remedies as methylene blue, tincture of iodine, Lugol's solution, Monsell's solution, argyrol, nitrate of silver, and hydrogen peroxide. Orthoform lozenges relieve the dysphagia.

For severe cases, with deep ulceration into the fauces or larynx, and in obstinate cases which tend to become chronic, good results have been obtained from salvarsan intravenously, and also applied locally triturated with glycerin. As Vincent's angina appears to be a spirillum disease, the administration of salvarsan seems to be a logical procedure in such cases.

34 SOUTH FULLERTON AVENUE.

THE X RAY TREATMENT OF EXOPHTHALMIC GOITRE.

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Röntgen therapy in the treatment of Basedow's disease is by no means new, although its application has only been widely employed within the past few years. Pfahler, in 1908, was only able to collect fifty-eight cases in the literature which had been treated by this method. In a review of the more recent literature since the publication of these cases, I was able to find reports of many hundreds of cases, and to these is appended a review of twenty-three cases of exophthalmic goitre treated in my private and hospital practice by means of the x ray. The statistical study follows:

Cured	6
Improved	5
Unimproved	1
Died from accident (gunshot wound)	4
X ray treatment following operation	4

Not included in this series are seven cases of goitre in which x ray treatment was instituted as

a preoperative measure to control hyperthyrea. It is interesting to note that in these patients two deaths resulted after operation.

The history of an unusually severe case of the disease in which the rays seemed to have almost a specific influence is cited below:

CASE I. Mrs. C. W., aged thirty-two years, wife of a physician, first noted symptoms of cardiac palpitation, tremor, and general weakness, sixteen months before; enlargement of thyroid gradually increasing in extent noted two months later; shortness of breath pronounced; generalized sweating; patient lost forty-five pounds in weight in less than a year, dropping from 170 to 125 pounds. Exophthalmos set in only within the past four months.

Operation was deemed inadvisable on account of the patient's poor general condition, and Röntgen treatment advised. When she first began treatment, her asthenia was pronounced, the mere exertion of getting on the table produced utter exhaustion and dyspnea; pulse rate 134. Improvement was extremely rapid in this case; within ten days the nervousness and cardiac palpitation diminished, the exophthalmos disappeared within three weeks, and general amelioration of the symptoms was observable within a month; in three months, during which time Mrs. W. received triweekly treatments, she had gained twenty-seven pounds, and the thyroid enlargement was no longer discernible.

It is now over three years since this patient first came for treatment, and she is and has been practically free from all symptoms of hyperthyroidism for over two years of that time. About once in six or eight weeks she returns for a prophylactic treatment with the x rays.

Another case which I may cite as one included under the group of those reported as improved is:

CASE II. Mr. A. M. (the only male patient whom I have treated), aged eighteen years, attending high school, mild symptoms of hyperthyroidism with moderate thyroid enlargement confined principally to the right lobe; latter was first noted fifteen months previously; pulse rate 108; no exophthalmos.

Twenty Röntgen exposures served to reduce his pulse rate to 82 and relieve the tremor, which was his most annoying symptom. Occasionally there was a tendency to arrhythmia and shortness of breath. This patient was under observation for eleven months and when he had a relapse, he returned for three or four exposures, which rendered him fairly comfortable for a period of four to five weeks. The goitre was coincidentally markedly reduced in size.

The latter is a case in which it is questionable whether or not surgical intervention might not be the proper procedure, but the fear of the knife on the part of the lad's parents and himself—an apprehension not unjustifiable, despite the reassuring statistics of skilled operators like Kocher, Ochsner, and the Mayos, whose statistics report mortalities of three to five per cent.—makes preferable, at least from the standpoint of those most interested, the nonsurgical treatment.

In order to render more definite the therapeutic relation of the x rays in Basedow's disease, it is pertinent to capitate briefly the cardinal signs and symptoms of the condition in the usual order of their appearance.

The first thing noticed is the gradual increase in size of the thyroid gland; next cardiac arrhythmia and palpitation; tremors; sweats; general weakness; and increasing weakness and anxiety. Exophthalmos is usually the last symptom to appear.

The symptom complex may be devoid of any one of the signs or symptoms, but acute hyperthyroid-

ism presents a picture which does not usually tax diagnostic skill. Fortunately there are stages of remission, and patients may be free for years from the annoying symptoms, without any decrease in size of the goitre, however. Here we have reason to believe (and this has been the belief of numerous observers) that there has been a reversion of type; in other words, there has been a change from the exophthalmic into the cystic or simple goitre. Mayo (St. Mary's Hospital Reports, 1911) aptly states this as follows:

Results of the accumulated knowledge in the examination of all forms of thyroid disease the world over is that there is a definite increase in the parenchyma of the gland in all forms of exophthalmic goitre, with evidence of overactivity of cell secretion. This evidence may present itself in several ways; (a) increase of cells in the alveola, (b) increase in the number of alveoli, (c) papillomatous invagination into the vesicles of the gland. All these changes may be throughout the gland or only in parts of it.

It seems probable that a thyroid which presents this condition of hyperthyroidism and does not destroy the life of the individual or destroy itself must at some period of its activity revert to simple goitre. Then colloid will be deposited with iodothyron, and the gland will lose its apparent cell activity.

And here, I take it, we have the crux of the whole situation so far as the action of the Röntgen rays is concerned, that is, we have here an agent which tends to assist in converting the enlarged thyroid of Graves's disease into the cystic or simple variety.

This is accomplished by the well established action of the rays in inducing degenerative changes in the thyroid cells, which undergo atrophic changes. That this is not merely theoretical is amply borne out by clinical experience, for resulting from this degenerative change in the thyroid cells there is lessened cellular activity with diminution of thyroid secretion. The clearing up of the symptoms of the hyperthyroidism after a few exposures to the x rays in a large percentage of these cases, is confirmative proof of this selective action.

Carl Beck goes still further in stating that the action of the x rays is due to a specific influence on the arteries; an induced proliferative and occlusive endarteritis, thus mechanically diminishing the vascular supply to the gland.

In these cases in my series in which the x rays manifested a curative or beneficial influence, the progress toward improvement as a rule followed no definite course. Some cases respond speedily to the effects of the rays; the nervousness, the dyspnea, and the sweating subside after two or three exposures. Other patients required twelve to twenty treatments before improvement could be noted. One thing was quite remarkable; in practically every case, with the exception of those in which no benefits were apparent by the exposure to the x rays, there was a marked increase in bodily weight. Arrhythmia and tachycardia, with the concomitant dyspnea, probably the most distressing symptoms of the disease, responded to treatment somewhat more slowly than the eye symptoms. It was remarkable to note in one of the cases the rapid subsidence of the exophthalmos. After one exposure to the Röntgen rays, the protrusion of the eyeballs had practically ceased.

It is somewhat disappointing, in a cosmetic way

at least, not to be able in every instance to secure a return of the thyroid gland to its normal size and contour—and yet this was accomplished in only two cases of my series. A diminution in size can usually be looked for, but an absolute return to normal size only rarely. This bears out the theory of the physiological therapy of the x rays on the thyroid cell, as here there is not the total destruction and disappearance of the thyroid cell such as we can expect in the treatment of epithelioma. In Basedow's disease, the manifestation of this agent is noted rather by a lessened cellular activity, resulting in a diminished thyroid secretion; cell growth may be retarded, even atrophic changes may result; actual destruction of the thyroid cell is problematical.

That the rays have succeeded in producing a reversion of type—changing the baneful thyroid of Parry's disease into a benign cystic goitre—may after all be the solution of the whole subject; that this is by no means impossible—even without therapeutic assistance. Mayo's article, already quoted, confirms. Even in an apparently cured case there may be a remission with an outbreak of acute hyperthyroidism. As a prophylactic measure, I request patients apparently cured to return for an occasional exposure.

In none of the seven cases in my series, reported as cured, has there been any tendency toward recurrence for two years since cessation of treatment; of those reported as improved (five in number) there has been an occasional tendency to attacks of hyperthyroidism, but these have been checked by renewed röntgenization of the thyroid.

The technic is simple. I use a tube of medium hardness; the rays are filtered through leather or aluminum, to avoid as far as possible injury to the skin; one m. a. to two m. a. of current passes through the tube; the face and all surrounding areas are protected by lead; ten minutes is the average duration of a single séance, and biweekly exposures are made. If there is a symmetrical enlargement, each side is exposed separately; if asymmetrical, particular attention is directed toward the more greatly enlarged lobe. Otherwise, treatments are given with the patient in the supine position with the tube focused over the centre of the gland.

Pancoast advises daily exposure of the goitre to be continued until a Röntgen dermatitis results. I have not followed this procedure, deeming it somewhat too drastic. Massive doses to the point of dermic toleration have been advised, but as I have not followed this method, I am not in a position to report results.

The experiences of many röntgenologists, in addition to the results achieved in the cases herewith reported, are sufficiently encouraging and conclusive to warrant the continuance of this agent in the treatment of a baffling disease. Where surgical intervention is refused or deemed inadvisable, the x rays, in conjunction with the hygienic measures which must always be employed, such as rest, quiet, and the like, offer the most valuable of all medical or physical measures for the relief of Basedow's disease.

GONORRHEA WITH UNUSUAL COMPLICATIONS.*

By M. ZIGLER, M. D.,

New York,

Instructor, Genitourinary and Venereal Diseases, Post-Graduate Medical School and Hospital; Chief of Clinic, Genitourinary Department, Lebanon Hospital.

CASE. Mr. M. M., aged thirty-three years, civil engineer, was treated from August 19, 1913, to January 27, 1914, for seminal vesiculitis, due to sexual excess. Previous history in regard to the genitourinary tract, otherwise negative. The present illness dated from April 16, 1914, on which date, after two days' incubation, the patient developed gonorrhea, with the usual manifestations. Gonococci were demonstrated in the discharge. April 23d, seven days after the onset of infection, the patient began to feel feverish, had chilly sensations, accompanied by headache, anorexia, and weakness, during the day; followed by a real chill, with subsequent profuse perspiration at night. The patient noticed that for forty-eight hours preceding the onset of the symptoms, the discharge from the urethra had ceased except at such times as he, by milking the urethra, succeeding in dislodging a thick greenish white pus cast, one inch in length, similar in shape to that of the urethral canal.

Examination of the patient on this day (April 23d) showed that he had a congenitally narrow meatus, of the diameter of 8 to 10 French, with no pus at the meatus. On milking the urethra, a pus cast was obtained, similar to the one described by the patient. Both first and second urines were loaded with pus. The temperature was 101° F., and the pulse 100.

As the patient stated that he was rheumatic and as I could find no signs of any other intercurrent affection, I gave him aspirin. At this time, I was not sure whether there was any relation between his septic symptoms and the narrow meatus complicating his acute gonorrhea, but I felt that if such was the case, drainage would finally establish itself, as I had seen other cases of gonorrhea in a narrow meatus finally adjust themselves to this congenital condition. The patient, who was a strong well developed man, continued at his work with the fever symptoms described until May 3d, a period of about ten days. On this day he was so feverish and prostrated that he remained at home and in bed. His family physician examined him for some intercurrent affection, but physical examination was negative, excepting as to temperature and pulse increase. After forty-eight hours rest in bed, he returned to work feeling somewhat better, but still feverish and complaining of sweats at night.

About a week later (May 11th), he was again obliged to go to bed, and remained at home for about fourteen days, with temperature ranging from 100.5 to 102° F., with increased rapidity of pulse, sweating, etc. Both the malarial smear and the Widal test were negative. Blood examination showed: Hemoglobin, 90 per cent.; red corpuscles, 5,520,000; white, 8,600; differential count, negative.

At the end of a fortnight, the patient returned to work, his temperature being normal; pulse frequency, still slightly above normal; and general symptoms of weakness and sweating still present.

A meatotomy was performed, June 4, 1914. Within twenty-four hours his symptoms entirely cleared up; there was no longer any fever, sweats, headache, etc., but there was a marked increase in the amount of urethral discharge. From this date, June 4th, until July 12th, a period of five weeks, the patient felt absolutely well, with the exception of his discharge.

On July 12, 1914, the patient suddenly had pain in the region of the right Poupert's ligament. This was promptly followed by swelling and redness over an area one and a half inch long and one inch wide. This area was exquisitely painful and gradually increased downward until it involved the upper

third of the anterior and inner surfaces of the right thigh. After twelve days, this phlebitis began to spread upward on the abdomen in the region of the bladder, to the opposite side, and then downward on the left thigh for a corresponding distance (namely, one third) on the anterior and inner surfaces. During this time he also manifested a right sided epididymitis. On palpation, one could distinctly feel the infiltrated veins in the inflamed area on the thigh. After several days, when the acute inflammation had subsided, one could see the bluish colored cordlike masses of veins standing out very prominently in the affected area.

The patient was immediately put to bed with wet dressings and ice bag applied to the inflamed veins. From July 12th, the date of onset, to July 27th, the area of inflammation gradually spread until approximately the upper two thirds of both thighs were involved. As the treatment above outlined, seemed to have no effect on the condition, vaccine therapy was decided upon. The patient received the first dose, July 27, 1914, 100,000,000 gonococci and 80,000,000 staphylococci.

July 27th, 28th, and 29th, there was no change in the phlebitic area, and no local or general reaction, except at the site of injection on the arm, where there developed a slightly tender erythematous area about one and a half inch long and two inches wide.

July 30th, he received his second injection of 175,000,000 gonococci and 150,000,000 staphylococci. Within twelve hours there was an elevation of pulse and temperature and slight headache. The edges of the phlebitic area on both thighs became red, inflamed, and painful. The next day, the urine, which had been pus-free for a fortnight, became markedly cloudy. The patient also had shooting pains in the right cord and testicle and in the right arm at the site of the first injection.

August 2d, he received 250,000,000 gonococci and 200,000,000 staphylococci. Within twelve hours he again had a fever.

August 4th, which was forty-eight hours after the third injection, he had marked tenderness in the right testicle, and the urine, which had become clear in the interval, became cloudy with pus.

August 8th, the phlebitic area again became very tender and painful; and the right testicle was swollen and tender. August 9th, the phlebitic areas were less tender. On this day the patient received 375,000,000 gonococci and about 300,000,000 staphylococci.

August 11th, the phlebitic areas of the thighs were again more tender and inflamed. The urethral discharge was present all day. The patient received 500,000,000 gonococci and about 400,000,000 staphylococci.

August 13th, the phlebitic area was still infiltrated, but the acute inflammation was gone. Slight tenderness, however, was still present. Within one week, as there had been no reaction and no recurrence, the patient was allowed to resume his work, and there has since been no return.

Permit me to draw attention to the salient features of this case; to wit:

1. The congenitally narrow meatus, with retention of live and dead gonococci, pus, and dead epi-

*Read at the October meeting of the New York Urological Society, Academy of Medicine, and before the Bronx Medical Society, November 11, 1914.

OHIO STATE MEDICAL SOCIETY

thelium; the subsequent absorption of part of these end products or their toxins into the general circulation, resulting in a low grade sepsis of seven weeks' duration, promptly relieved by a meatotomy.

2. The large area of involvement of both thighs and part of the abdomen, with phlebitis of gonorrheal origin, favorably influenced by vaccines, although not responding for a like period to the ordinary methods of treatment advocated.

3. The increase of pain within twelve to twenty-four hours after each injection (of vaccine) at the edge of the phlebitis on each thigh; the pus shower in a urine which had been pus-free for about a fortnight, only to become clear again within forty-eight hours, and cloudy with pus once again upon the readministration of vaccine. These reactions, focal in nature, might in a vague case of gonorrheal phlebitis be considered of diagnostic value.

4. As this report is based upon a single case of phlebitis treated by mixed vaccines, one is not justified in drawing definite conclusions; but in view of the fact that the treatment of gonorrheal phlebitis is symptomatic, plus rest, one is justified in trying mixed gonorrheal vaccines in conjunction with the usual methods of treatment.

40 EAST FORTY-FIRST STREET.

ROENTGEN DIAGNOSIS OF SOME PATHOLOGICAL CONDITIONS OF THE LARGE INTESTINES.

BY L. JACHES, M. D.,

New York,

AND M. ROSENHOHN, M. D.,

New York.

(From the Roentgen Laboratory of the Mt. Sinai Hospital.)

In the past few years, enormous progress has been made in the diagnosis of various pathological conditions by means of the Röntgen ray. In many cases, too, has there been ample opportunity to verify and correct our interpretation of the radiographic and fluoroscopic findings. It is but necessary to refer to the various bone lesions and conditions of the thoracic viscera for one to appreciate how necessary the Röntgen rays are for proper diagnosis in certain cases.

In no more important field is this manifest than in the diagnosis of abnormal conditions of the large intestine. The conflict and doubt which must exist in the interpretation of lesions of the stomach, in the present state of our knowledge, are in great part done away with in disease of the large intestine. With proper care in their interpretation the roentgenograms of the large intestine point readily to the diagnosis of the lesion.

The cases referred to in this article have been chosen from the records of the Mt. Sinai Hospital, from the services of Doctor Meyer, Doctor Manges, Doctor Gerster, and Doctor Lilienthal, who kindly permitted us to use their material. In describing them we have recorded the cases under suitable caption, the better to refer to their points of similarity. One point cannot be too strongly emphasized—that where a positive finding is obtained it is absolutely

necessary to verify the existence of the abnormality by a confirmatory roentgenogram.

1. TUMOR OF THE COLON DIAGNOSED.

A. Proved by operation: I. I. L., aged thirty-five years, had for six months complained of epigastric pain at times



FIG. 1.—Tumor of cecum.

accompanied by vomiting and loss of weight. The roentgenogram (marked A) showed defective filling of the cecum and enabled us to report a tumor of the cecum, where on physical examination a vague mass had been felt.

2. M. Z., aged forty-four years, had been complaining for seven months of epigastric distress after meals and of constipation. Examination showed a hard mass in the right iliac fossa. The roentgenogram (marked B) showed a definite defect in the ascending colon, at about its middle, constricting the lumen.

3. I. R., aged fifty-eight years, had for six months suffered from abdominal cramps, constipation, and loss of



FIG. 2.—Neoplasm of ascending colon.

weight. Examination was negative. A roentgenogram showed a constriction in the descending colon at the level of the iliac crest, of a character similar to that seen in Fig. B.

B. Not confirmed—surgical interference refused: I. A. G., aged fifty-six years, had complained of constipation

and loss of weight. Examination showed marked anemia and a mass which could be felt in the left side of the abdomen, at the level of the umbilicus. Clinically the diagnosis was neoplasm of the descending colon. The roentgenogram showed a defect in the transverse colon at about its middle.

2. L. W., aged fifty-nine years, had for four weeks complained of abdominal cramps and alternating attacks of

(marked D) showed an elongated colon, kinked in various places. At operation, the conditions as noted on the plate were found and an implantation of the ileum into the descending colon was made.

IV. INSUFFICIENCY OF ILEOCECAL VALVE.

In several cases the roentgenograms have shown the enema to have filled not only the colon, but the coils of the ileum to varying degrees. It has been our procedure in



FIG. 3.—Hirschsprung's disease.

diarrhea and constipation. Examination showed a large mass in the right side of the abdomen. The roentgenogram showed a defect in the ascending colon.

II. MEGALOCOLON OR HIRSCHSPRUNG'S DISEASE.

1. A. F., aged six years, had since birth suffered from constipation and had had a large abdomen. The roentgenogram (marked C) showed marked dilatation especially of the transverse portion, as well as of the rest of the colon.

2. Child, aged three years, brought because of the prominent abdomen and the diarrheal attacks. The roentgenogram showed very distinctly the enormous transverse colon,



FIG. 5.—Ileocecal insufficiency.

this work to take plates immediately after the injection of the enema and others after the patient had evacuated the bowels. The clinical significance of the patent ileocecal valve is at present a matter of controversy.

1. A. K., aged fifty-seven years, had had several attacks of right ileac pain. Examination was negative. The roentgenogram (marked E) showed no abnormality other than insufficiency of the ileocecal valve with filling of the coils of the small intestine. The defect in the ascending colon is only apparent. (No operation.)

2. I. S., aged twenty years, had complained for months of right ileac pain, having no relation to meals, not radiating, not affected by conditions of the bowels nor by pressure. Examination showed tenderness over McBurney's

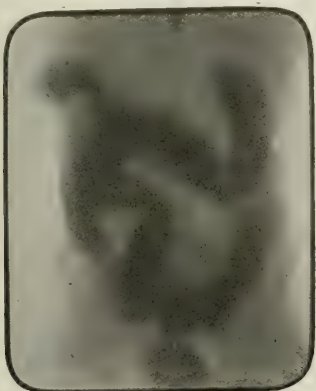


FIG. 4.—Elongation and kinking of colon.

which could not be filled by the enema administered (one pint of fluid).

III. ELONGATION AND KINKING OF THE COLON.

1. M. C., aged twenty-three years, had complained for four and one half years of abdominal distress and constipation. Examination was negative. The roentgenogram

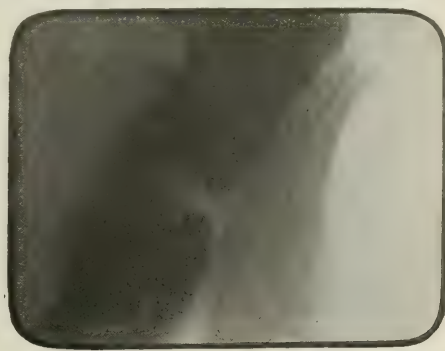


FIG. 6.—Ileocecal tuberculosis.

point; the Meltzer test was negative. Clinical diagnosis chronic appendicitis. The roentgenogram showed no abnormality other than insufficiency of the ileocecal valve (not operated on).

3. L. W., aged fifty-two years, had for several weeks been complaining of pain in the lower abdomen, and for

a long time of constipation. The physical examination was negative. The röntgenogram showed no abnormality other than insufficiency of the ileocecal valve (not operated on).

V. ILEOCECAL TUBERCULOSIS.

1. L. M., aged fifty-eight years, had for five weeks complained of abdominal cramps and the feeling of a mass in



FIG. 7.—Extracolonic neoplasm.

the right iliac fossa. The examination showed visible peristalsis and a doughy mass in the right iliac region. The röntgenogram (marked F) shows the irregular filling of the cecum and adjacent ileum. The plate is presented because of the irregular filling of the cecum and terminal ileum.

VI. ILLUSTRATING IMPORTANCE AND NECESSITY OF A CONFIRMATORY EXAMINATION.

1. C. C., aged sixty-five years, was admitted complaining of obstinate constipation and abdominal cramps of a

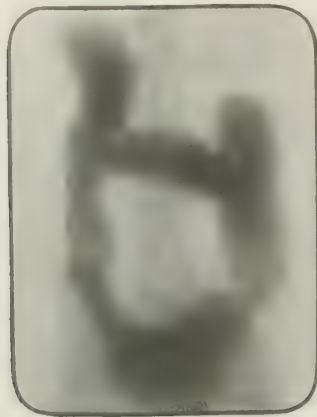


FIG. 8. Normal colon

week's duration. Physical examination showed a mass in the right hypochondriac region. The röntgenogram showed an apparent obstruction to the passage of the enema at the hepatic flexure. Under efficient enemata, catharsis, etc., both the constipation and the mass disappeared. The second röntgenogram failed to confirm the first, and the patient was discharged cured.

2. J. W., aged fifty-three years, had for several months complained of epigastric distress after meals, constipation, and loss of weight. A bismuth contrast meal gave an anomalous picture of the stomach. A bismuth enema revealed a defect in the descending colon. This was not confirmed, but on the strength of the one examination a diagnosis of neoplasm of the descending colon was made. At operation a carcinoma of the stomach was found, but neither to the eye nor to the hand could any abnormality of the colon be determined.

VII. PATHOLOGICAL CONDITIONS EXCLUDED.

Many cases are referred to the röntgenologist for examination of the gastrointestinal tract, where the clinical diagnosis rests between an intrinsic affection of the intestines or some extraperitoneal condition. The following cases are referred to briefly, for in them the diagnosis was difficult and the röntgenogram helped to rule out pathological conditions of the intestine.

1. B. Z., aged seventy-five years, had for ten days complained of left hypochondriac pain. Examination showed a well circumscribed mass with ballotement in the left iliac fossa. The diagnosis rested between ulcerating neoplasm of the sigmoid and acute diverticulitis. The röntgenogram showed no abnormality of the colon. At operation an intraabdominal abscess, whose etiology could not be determined, was found.

2. S. A., aged fifty-eight years, had for several months complained of vomiting, abdominal cramps, diarrhea, alternating with constipation, stools containing mucus and blood, and loss of weight. Physical examination showed a mass in the left hypochondrium, which was at first thought to be a neoplasm of the splenic flexure. The röntgenogram (marked G) showed the integrity of the colon, though the entire descending portion was pushed over to the median line. The subsequent clinical course and the appearance of metastases proved the condition to be a hypernephroma.

3. S. F., aged twenty-seven years, had for six weeks complained of right hypochondriac pain, abdominal cramps, and constipation. Physical examination showed an immovable mass in the right hypochondrium. The röntgenogram showed no abnormality of the intestine. At operation, a large adherent gallbladder was found.

4. I. G., aged fifty-six years, had for eight months complained of cramps in the upper abdomen, constipation, and loss of weight. Examination showed a mass with ballotement in the right hypochondrium. The Röntgen examination showed no abnormality in the intestine. The subsequent course warranted the diagnosis of retroperitoneal sarcoma.

It will be seen from the cases briefly referred to, above and the accompanying plates, that a Röntgen examination is warranted, if not absolutely essential, where an abnormal condition of the colon is suspected. Its aid in diagnosis is obvious.

For reference, a röntgenogram, marked H, of a normal colon is added.

27 EAST NINETY-FIFTH STREET.
785 MADISON AVENUE.

Treatment of Illuminating Gas Poisoning.—

A. Pic and P. Durand, in *Lyon medical* for April 12, 1914, report a case in which it was demonstrated that massive subcutaneous injections of oxygen gas may be made in illuminating gas poisoning without danger and with marked benefit. In this case not less than 230 litres of oxygen were injected on the outer aspect of the thighs and in the flanks within a period of twenty-two hours. Fifty litres were injected at once in the first hour. No untoward effect was noted. No other treatment was applied, but a few injections of ether and camphorated oil. The patient regained consciousness and rapidly recovered, two hours after the last injection.

Abstracts and Reviews.

SANITATION IN PANAMA.*

BY SURGEON GENERAL WILLIAM C. GORGAS,
U. S. A.,
Washington.

Our work in Havana and Panama is based upon that of great investigators who have gone before us. In the many years that I have been engaged in sanitary work in tropical and semitropical countries I have been impressed by the fact that the population in these countries is below the average in physical and mental ability. Most of the populations I have known have been the mixed races of the Spanish and Indian. The physical endurance of the original Spanish was extraordinary. They were able to march day after day in the tropics. They also were not of a low type mentally. A small part of the population of Panama is still Spanish. The Indian, too, at the time of conquest was a very good man physically and not low mentally. The present deterioration is attributed to the mixture of races. This deterioration, however, occurs in Europeans settling in these countries, and to my mind the greatest element lies in the infections so rife there, chief among these in the deterioration being malaria. Panama, from its location at the crossing place of the two oceans, was known the world over as probably the most unhealthful place in all the tropics, and the reputation was well deserved. I presume that more white men have died in Panama during the 400 years of its use as a crossing place than at any one place anywhere in the world. The principal reason for this was that there were more unacclimated people there than anywhere else. Following the first 300 years of traffic came the construction, in 1849, of the Panama railroad. The loss of life and interference with construction of this road on account of health conditions were very great. The tradition is that each railroad tie represented a lost life. Then came the much larger effort at construction under the French, when from sixteen to twenty thousand men were brought together, and health conditions were very much worse than they had ever been before. The French had no system of reporting upon health conditions, but many instances are well known of the great mortality. For example, the year before we went down, the superintendent of the railroad had brought to the isthmus his three sisters, and within a month the three ladies had died. The first chief engineer under the French brought his family of four, and within six months all had died of yellow fever. It is obvious that among those less well protected the mortality was greater. Of twenty-four nurses brought to the isthmus by the mother superior of the hospital, twenty-one died within three or four years. One of the French engineers told me that he was the only one of seventeen alive at the end of a month after arriving at the isthmus. The French lost probably three out of four of the whites who went to the isthmus.

We took to the isthmus in 1913 about 10,000

Americans. Of these, 6,500 were men, the remainder being their wives and children. Of these 6,500 workers we had a death rate of 2.5 per 1,000. We had a force of Americans averaging 80,000 persons there for ten years. The mortality rate of 2.5 per 1,000 was small in comparison with that of a similar force anywhere; very much smaller than the death rate in Philadelphia, I have no doubt.

The manner of life was harder than that of any one in the tropics before, because a man in Panama worked day in and day out, week after week and month after month; a steam shovel man, for example, was exposed to all conditions of weather. He was, however, thoroughly protected in his living conditions from the mosquito, which carried the infections of yellow fever and malaria. This protection was the only difference in the conditions during the ten years of the work of the Americans and of previous workers. Therefore, I argue that the climatic conditions, the heat, the rain, the locality, had no direct effect upon the health of the white man in the tropics. Very much more striking than the figures I have given you is the appearance of these 10,000 Caucasians. Anyone seeing the thousands at work on the isthmus would think they were western farmers rather than mechanics, with their sunburnt, ruddy appearance, due to their work in the open. I am, therefore, inclined to look upon the race degeneration in tropical countries as due to infection. It is feasible, at reasonable expense, just as we have done in Panama, to protect the people of other tropical countries against infection, and I am hoping such precautions will be adopted in those countries. Quinine is used extensively in the treatment of malaria and is made accessible without charge to the men. At first we put rum in the solution, which was made into compressed tablets, with the idea of aiding absorption, but that led to a certain amount of abuse. A few of the men would make it a habit to meet the dispensing officer a dozen times a day. As he had no means of recognizing the men, they would, of course, get a dozen doses of tonic instead of one. Lately, however, we found that the rum was not necessary and it was omitted.

The formerly elaborate hospital system at Panama is now represented solely by the one large hospital at Ancon, which has a capacity of 2,500 beds.

Treatment of Pulmonary Tuberculosis.—J. F. Larrieu, in *Semaine médicale* for March 18, 1914, advises the administration, in all stages of pulmonary tuberculosis, of a mixture with the following formula:

R Potassii iodidi,	3iiss (6 grams);
Potassii bromidi,	3ii-iii (8 to 12 grams);
Strychninæ sulphatis,	gr. ss (0.03 gram);
Tincturæ cinchonæ,	3v (20 c. c.);
Fluidextracti cocæ,	3ii (8 c. c.);
Glycerini,	aa 3iiiss (100 c. c.).
Syrupi aurantii, .. }	
M. et ft. solutio.	

One tablespoonful of this is to be taken at breakfast time for twenty consecutive days in each month. The potassium bromide in the formula prevents any possible untoward effects from the iodide, in particular overcoming its tendency to inflammation.

*Abstract of a lecture before the Philadelphia County Medical Society, January 27, 1915.

THE AMERICAN HOSPITAL AT PARIS

A Conversazione at the American Hospital of Paris—The Program in Full—Addresses by Dr. G. W. Crile, Dr. Alexis Carrel, Sir Almroth Wright, Professor Tuffier, Sir Berkeley Moynihan, and the American Ambassador—Double Object of the American Hospital, to Help the Wounded and to Disseminate Scientific Knowledge.



Dr. George W. Crile.

THE AMERICAN HOSPITAL,
PARIS, February 7, 1915.

I think your readers might be interested in what has recently taken place at this hospital. Doctor Crile has seemingly achieved the impossible. He gathered together the greatest men in the French medical world as well as in the British medical world, and gave us all an opportunity to acquire valuable and interesting information. Just as the concerts arranged here were instituted to divert the wounded from thoughts of war, so Doctor Crile has given us a medical conversazione in the shape of a clinic and series of lectures, which all the medical staff fully enjoyed. I enclose a copy of the program of the day,



Dr. Alexis Carrel.

which gives, in a small measure, an idea of what took place.

To begin with, there was a series of typical war operations, pictures interspersed with tiny bits of laboratory interest. Following this, *le sujet d'attraction* of the entire day was a conference on various

features of the war, in which Doctor Crile, Doctor Carrel, Sir Almroth Wright, Professor Tuffier and, last but not least, Sir Berkeley Moynihan, took part. The presence of the American Ambassador lent almost a national interest to this occasion.

Doctor Crile began the conference by a talk on



FIG. 1.—Courtyard of the American Hospital at Neuilly, a suburb of Paris. This hospital has a capacity of 450 beds and is in charge of volunteer American surgeons and nurses.

what he termed "the vivisection of a nation;" in which he compared the experiments made upon animals to the series of experiences the Belgian nation had undergone. He took up in detail the various experiments by which he had demonstrated that long sustained exhaustion and severe emotions such as fright, had produced the acidity in the blood and certain well defined changes in organs necessary to the existence and maintenance of the body. He showed how the Belgian nation, considered as an individual, through the expatriation of its people, through its sufferings, through the imperious demand made upon it by the Germans and its response to the alternative of—as Doctor Crile put it—"fight or flight," suffered definite and well defined organic changes. The fact that men had "aged years in months," the fact that women had suffered miscarriage, that men with renal diseases had gone into acute uremia and died; all these could be likened to what men had produced in a very small measure in laboratory animals, and that humanity has suffered to be carried out on a large scale in human beings. The effects of these horrors would be evident in years to come. The life of the people as a nation would be shortened, their vitality impaired, and their future lives embittered.

Following Doctor Crile, Doctor Carrel spoke with great emphasis on how science that had improved the ability to destroy human lives, had not likewise kept similar pace with its ability to save them. It seemed unbelievable to him that the same progress that was capable of converting the lance and arrow-head into a "75" and an aeroplane bomb, was not utilized in the attempt to limit the horrors of war and to help return the wounded, as useful citizens, to society. The value of the laboratory had not properly been kept in mind. He felt that there was

not enough cooperation between the pathologists, bacteriologists, and surgeons in their attempts to ameliorate the sufferings and to aid in their cure.

He spoke enthusiastically of the attempt on Doctor Crile's part to institute a research laboratory in connection with the American Ambulance and paid a tribute to the founders of the hospital who had kept in mind the necessity of a properly equipped laboratory. (I hope that I may have an opportunity later on to write more in detail about the organization of the laboratory in the American Ambulance.)



FIG. 2.—Front of the American Hospital at Neuilly, a suburb of Paris. Each of the three wards is in charge of a volunteer hospital unit from some American medical college. Each unit serves three months. Dr. Joseph A. Blake, of New York, is chief surgeon in permanent charge of the entire hospital, or *Ambulance*, as it is termed by the French.

Sir Almroth Wright took up the subject of the application of vaccino-therapy to war surgery. From his remarks, one gathered that "laudable pus" might not be so laudable. He found, he said, that fluid obtained from granulation of wounds by means of what he termed "a lymphatic leech" did not show the same characteristics as the pus gathered around it between the dressings. He found that the fluid which was in this receptacle contained nothing but streptococci and few white blood corpuscles, mostly streptococci, and that the pus outside of this was filled with necrotic white blood cells and numerous various microorgan-

isms. The hypothesis, he suggested, was that the trypsin ferment contained in the white cells on their disintegration, helped produce, by their peptonization of the exudate, a suitable medium for the propagation of numerous organisms; the streptococcus, however, was capable of growing in the blood and tissue of the body, without other changes being necessary. He made a plea, therefore, in the treatment of wounds, for the application of lymphagogue and hypertonic salt solutions; lavage of the wounds by the various serums from the body would be accomplished, and diapedesis of the white corpuscles facilitated. These



FIG. 3.—Scene after patients have been brought in from the field. The wooden landing is to facilitate the carrying in of patients and affords a view of the grounds in front of the Ambulance.

infections had for the greater part turned out to be those by anaerobic bacteria, instead, as had been expected, by our friends the streptococcus and staphylococcus; the question of the early production of aerobic conditions in the wounds was therefore *sine qua non*.

He also insisted on the fact that vaccinothrapy in a wound poorly drained was practically useless; it was only in wounds in which Nature had been aided to throw off the evident infection, that Nature might be stimulated to the proper extent.

He also touched on a new method of determining the wandering action of the white corpuscles against a given microorganism; this consisted in the utilization of blood that had been centrifugated and then permitted to clot, so that the white corpuscles which had remained in a layer above the red, would have to wander through the fibrin net of the coagulated plasma to surround the foreign bacteria. This ability to wander through the fibrin net of the coagulated plasma could be utilized as a measure of resistance.

CONVERSAZIONE

AMERICAN HOSPITAL OF PARIS
Friday, February 5, 1915.

9:15	Inspection of Hospital	Mr. Carroll
10:00	Dental Clinic.	
10:20	Operations	Doctor Crile
12:45	Luncheon.	
2:10	Operations	Doctor Du Bouchet
3 to 4	Operations	Doctor Mignot
	UNIVERSITY LABORATORY, THIRD FLOOR.	
4:15	The Vivisection of a Nation..	Dr. G. W. Crile
	Science has perfected the art of killing, why not that of saving? ...	Dr. Alexis Carrel
	Scientific control in field service,	
	Sir Almroth Wright	
	Practical problems from the viewpoint of a field inspector	Professor Tuffier
	Military Surgery from the viewpoint of a field consultant...	Sir Berkeley Moynihan

Professor Tuffier made a plea for a better regulated method of transportation of the wounded from the field of battle to the nearest properly equipped

and maintained hospital. In the first place, he insisted on the absolute necessity of the use of light automobiles. It may be said that the founders of the American Ambulance were the first to recognize the value of the light weight American cars, or those similarly built, in the transportation of the wounded from the field of battle. Their success is attested by the fact that the Royal Army Medical Corps, as well as the French medical service, have today followed suit. Everywhere in the countries involved in war, light motor cars have been converted into ambulances.

The great demand for automobiles was evident when one considered that an army consisting of 100,000 men required at least



FIG. 4.—Group of convalescing patients on the terrace of the hospital, illustrating the different races at the hospital: Senegalese, Arabs, Algerians, British, and French, of course.



FIG. 5.—One of the wards, originally built for a classroom, converted into a hospital. The arrangement of the lighting suggests a classroom.

200 automobiles. The French army, to be properly equipped, would require therefore about 2,200 automobiles. As inspector general of the French army, he pointed out that he had succeeded in centralizing automobiles assigned to different army units, so that, depending upon the number of combatants engaged, the proper number of automobiles could be used where they were most needed. He also touched upon the necessity of continual evacuation. He cited as an example Dunkirk, which during the fighting at Dixmude received continuously for a number of days an average of 5,000 wounded each night. Dunkirk, at the most, could muster 3,000 beds; the necessity of continuous evacuation to far removed centres was therefore made apparent.

Professor Tuffier insisted on the use of boats properly equipped as evacuating conveyances. The disadvantage of sea travel was not to be compared with the greater disadvantages that were encountered in transportation by rail. Patients were more comfortable, were more easily kept warm, and were more properly treated in boats well fitted up than in hospital trains. The importance of early first dressing was also emphasized. Occasionally, it was quite impossible to carry out these measures. An example was given. In one battle that had taken place in the Vosges, where both contesting parties were battling in the woods, it was possible only after six and a half days to penetrate into the woods where men who had been wounded at the onset of the battle were found still living with wounds entirely gangrenous. He maintained that infections were carried in at the time of the injury (experiments to prove this have been done at the American Ambulance). He, therefore, in-

sisted on the necessity of extracting the projectile, especially if this was a shrapnel ball or a piece of casing of the shell, as soon as possible after the receipt of the injury.

Another point was the necessity of the presence of a skillfully trained and experienced surgeon, whose judgment could determine immediately whether a patient should be transferred to the base hospital or be operated upon at once. It was not necessary, except in isolated instances, to carry out operations upon the field (extensive injuries of legs or thighs necessitating the immediate amputation with the control of hemorrhage). The fact had to be kept continuously in mind that the possible advance of the enemy and the psychic shock to which the wounded might be subjected were of sufficient importance to warrant the exercise of the best of surgical judgment at the front where it was the most urgently needed. The technic of operation, he said, could be learned very quickly. It was surgical



FIG. 6.—Improved condition of one of the rooms assigned for pathological work. This room shows the bacteriological department. Other rooms are for, 1, serology, 2, histology, 3, pathology, 4, bacteriology.

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indications that required extensive experience. He, therefore, made a plea that the first field ambulances have surgeons of good judgment and mature experience.

He was followed by Sir Berkeley Moynihan, who discussed the question of the infections of the knee joint that were so continuously seen since the beginning of the war. He hoped that the infected joints would be drained as anatomy indicated, viz., posteriorly, through the bursal sacs that covered the articular ends of the femur. He also touched upon the proper treatment of frostbite. This subject had been a source of anxiety and annoyance to the surgeons; the question of amputation had often come up. Sir Berkeley Moynihan insisted upon the fact that, at no time, should the surgeons give way to the desire to amputate such limbs. These cases were due to the damp and pressure as much as to the low temperature to which they had been subjected. In 1,300 cases that he had observed at Rouen, they had been allowed to slough off of their own accord. The result was that granulations were seen where none had been expected. This observation was in line with the pathological studies carried out at our laboratory, proving that gangrene in these cases is often limited to the derma and superficial tissues. He suggested that if the limbs were either lightly covered or not at all, and kept cool, the patient would be comfortable and the necessity for the administration of narcotics very often obviated.

Mr. Sharpe, American Ambassador to France, concluded the conference with several remarks, in tribute to the devotion and efficiency of the women connected with the Ambulance.

It has not been considered sufficient merely to minister to several thousands of wounded. The utilization of this wonderful plant for the dissemination of scientific knowledge has been continuously kept in mind in a way that bids fair to astonish the world.

I trust that I may have an opportunity in the near future to keep your readers fully informed of occurrences of medical interest that we encounter here daily. B. J.

Pus Inoculations, and Treatment of Pneumonia by Subcutaneous Injections of the Patient's Blood.—V. Nesfield (*Indian Medical Gazette*, December, 1914) says that in his experience the logical vaccine treatment is to inject the issuing pus, when rendered innocuous, as this contains the true toxins derived from the living organism in the living host. His preparation of the pus for vaccine purposes is as follows: Wipe the interior of a wide mouthed one ounce bottle with tincture of iodine, wipe the stopper, rinse out with one to fifty carbolic acid. Collect the pus in this, and add an equal volume of one to fifty carbolic acid, put in a piece of camphor, put on the stopper and put in a cool place. This must not be used for twenty-four hours, to allow the organisms to be killed. He has injected such pus over a thousand times; the dose is two minims on the first day, three on the second, four on the third, and so on daily till seventeen minims are given. Ten minim doses can be given afterward on alternate days.

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLV.—What is your experience with high frequency currents in the treatment of tumors of the bladder? (Closed.)

CLVI.—What is your experience in the treatment of pellagra? (Answers due not later than March 15th.)

CLVII.—How do you treat diarrhea? (Answers due not later than April 15th.)

CLVIII.—How do you treat heartburn? (Answers due not later than May 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best paper submitted in answer to Question CLIV was awarded to Dr. Clarence G. Bandler, of New York, whose article appears below.

PRIZE QUESTION NO. CLIV.

THE TREATMENT OF PROSTATITIS.

BY CLARENCE G. BANDLER, M. D.,
New York.

Inflammatory involvement of the prostate gland may be either acute or chronic and the treatment of the two conditions varies somewhat. For the acute condition, complicating an acute posterior urethritis, the patient should be in bed and a profuse fluid diet ordered. A glass of water every hour during the day will serve greatly to increase the urinary output, and at the same time will dilute the urine sufficiently to reduce irritation from that source. Antibleorrhagic medication, such as oil of santal or mixtures containing cubebs or copaiba should be immediately interdicted. Urethral irrigation or any urethral instrumentation is contraindicated. An alkaline, sedative diuretic should be ordered, the following formula being very useful:

R Kalii bicarbonatis,	3i-30.00;
Tinctura hyoscyami,	3x-40.00;
Extracta kava kava fluidi,	3v-20.00;
Aquea menthae viridis, q. s. ad.	3vi-200.00.

M. Sig.: Two teaspoonfuls with water 4 q. h.

Daily defecation is absolutely essential, and for this purpose a vegetable cathartic is to be preferred. Heat should be applied to the perineum and over the bladder and the hot water bag or the electric heating pad will serve.

Hot sitz baths with the water at a temperature of 105° F. should be given two or even three times a day, and at the same time a hot rectal irrigation should be administered. In the latter procedure great care should be observed. Two large soft rubber catheters with lateral and terminal eyes, one No. 18 F., the other No. 24 F., should be well lubricated with petrolatum and gently introduced into rectum for about four inches and no further. A fountain

syringe or irrigating jar should then be hung not more than two feet above the patient, and the tubing connected with the smaller rectal tube. About two gallons of hot water (110 to 120° F.) should be allowed slowly to run into the rectum and the outflow should be continuous with the inflow so that the prostate gland may receive the heat effect only. Under no circumstances should the water cause an enema effect. Great relief is obtained by these two measures.

If vesical or rectal tenesmus is severe, a suppository containing extract of opium grain one quarter and extract of belladonna grain one eighth should be administered as required.

If the prostatitis is unusually severe, acute retention of the urine may result. This condition should be relieved by gentle catheterization of the bladder with a soft rubber or woven silk catheter under careful aseptic precautions. After withdrawal of the urine the bladder and urethra may be irrigated with warm boric acid solution. Strongly antiseptic solutions are *not* desirable for this irrigation.

If this treatment is carried out methodically the condition will subside in a week or ten days, when mild antiseptic treatment should be directed to the posterior urethritis.

Occasionally abscess of the prostate gland results from prostatitis, which of course necessitates perineal incision and drainage with diversion of the urinary stream by means of external urethrotomy.

Chronic prostatitis resulting from a chronic posterior gonorrheal urethritis, rarely occurs alone, but usually in conjunction with seminal vesiculitis. However, chronic prostatitis alone frequently results from sexual and alcoholic excesses, coitus interruptus and masturbation. These patients are usually up and about. Regulation of the bowels is absolutely essential, this being done best with vegetable cathartics. Internally a urinary antiseptic such as hexamethylenetetramine in one of its numerous forms should be administered (gr. \times 4 q. h.).

If rectal examination reveals a large, soft, boggy prostate, massage, with expression of prostatic secretion per urethram, should be conducted on a full bladder at five day intervals. This will serve to rid the prostate of inflammatory products, and immediate urination will then cleanse the urethra. Hot rectal irrigations and hot sitz baths are desirable once a day.

Instillations of nitrate of silver, one to 1,000, increased gradually to one per cent., should be employed daily, and for this purpose a soft rubber catheter, No. 12 F., and a small syringe is to be preferred, as inflexible metal instruments are more apt to cause traumatism.

Examination of the posterior urethra with the posterior urethroscope should always be made, as injection and swelling of the verumontanum is continually present in this condition, as well as enlargement of the prostatic ducts with purulent excretion. Topical application of silver nitrate, ten per cent., should be made to these points through the urethroscope at weekly intervals. Tonic medication should be given internally, when indicated.

These cases require close observation, careful and painstaking treatment, as chronic prostatitis responds slowly to even the most efficient treatment. In the cases complicating a chronic posterior

urethritis, no patient is to be considered cured until the specimen, massaged from prostate on a full bladder, in the morning before urination, is pronounced free from gonococci after each of *several* examinations over a period of at least two months, with the patient pursuing his ordinary routine of life.

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Dr. T. J. Kinnear, of Springfield, Ill., writes:

In the treatment of acute prostatitis the patient should be put to bed in a bright, well ventilated room with a male nurse in attendance and all oversollicitous relatives and friends excluded from the sick room, if feasible. The diet should be bland and easily digestible in character, and of sufficient quantity to meet all of the needs of the body. In the extremely acute cases a milk diet for a few days, followed by the addition of some solid food, is advisable, but until the acute symptoms subside, the lighter the diet, the better. The bowels should be kept in a rather loose condition, for which purpose a mild laxative, such as cascara, or if necessary a saline should be used daily; local and internal treatment must be adapted to the individual case.

The urine must be kept as bland and nonirritating as possible. In some cases this will require the administration of alkalies, in others some of the acid antiseptics would be indicated. In the first class of cases nothing gives more relief than bicarbonate of sodium or potassium, dram one half, with tincture of hyoscyamus, minims ten to fifteen, given in water, every three hours to three times a day. In the second class, hexamethylenamine in connection with saw palmetto, uva ursi, or triticum repens is of much value. If the patient has been taking some of the oils or balsams, as sandal wood, copaiba, or the like, for a previous urethral infection, these can be continued.

In the way of local treatment nothing should be administered through the urethra during the acute stage, and no instrument should be inserted except to relieve the distended bladder. This is seldom necessary, as by the use of hot sitz baths, hot applications to the perineum and over the suprapubic region, emptying of the bladder is usually accomplished. A bladder that cannot be emptied spontaneously must be either relieved by catheter or aspirated by the suprapubic route. In some very severe cases it may be necessary to relieve the bladder by a perineal incision; this incidentally not only gives free drainage of the bladder, but also of the prostate, and usually relieves all of the acute symptoms.

Some cooling apparatus applied through the rectum is theoretically, and in some cases practically of great value. But in many cases as much relief may be secured by low enemas of cold, sometimes alternated hot and cold water, as from the Arzberger apparatus or any other of like character. One method of giving the low enemas is to insert a large and small catheter side by side at the same time, injecting the enema through the small catheter and allowing it to drain off through the large one. This is an inexpensive method and will serve in many instances as well as any expensive apparatus on the market. One may also employ as a tem-

porary apparatus one of the many return flow urethral irrigators. If the one the practitioner has is too long, it may be readily altered by slipping over it a section of a catheter, leaving one inch of the distal portion exposed. This permits a ready inflow and outflow, and often these can be used for fifteen or twenty minutes at a time without causing any rectal discomfort. Incidentally it helps keep the bowel washed out and prevents any irritation from that source.

In the average case the use of serum or vaccine should be considered. If enough time is at the practitioner's disposal, or he is within reach of a laboratory, autogenous vaccines can be prepared and used. But if he is unable to make use of these aids the mixed infection vaccine or the polyvalent Neisser vaccine can be used, and in most cases will assist in relieving the infection, though not as successfully as in subacute or chronic conditions. In every acute case where the pain is intense, and symptoms of sepsis are quite prominent, one may use a stock preparation of the serum, prepared from the bacterial strains responsible for the infection. For the relief of pain, nothing serves better than the old opium and belladonna suppository used two, three, or more times daily as required.

Should the process go to an abscess formation, perineal incision and drainage of the abscess is preferable to the rectal drainage, as in the latter case one cannot control the exposure of the wound to septic materials, whereas in the perineal drainage additional septic matter does not obtain ready access to the abscess cavities.

Under the treatment as outlined above, the acute prostatitis should rapidly pass into the subacute and later to the chronic form, in which condition the medicine and treatment change. Appropriate internal medication must be determined by the urinary findings. The use of autogenous vaccine is indicated, and the vaccine should be given about every five days. Local treatment through the urethra and rectum are the rule rather than the exception. For the local treatment through the urethra, there are many methods of choice. The instillation of silver nitrate solution ranging in strength from one fifth to one and even two per cent., used probably every four days, produces germicidal effects upon the specific organism second to none, and stimulates repair of the infiltrated gland. Irrigations of potassium permanganate, ranging in strength from one in 5,000 to one per cent., will aid in healing the local processes. In some cases electrolysis by the use of the insulated copper sound, using the negative electrode in the prostatic urethra, will help. Some of the organic silver salts may prove of value. Massage of the gland through the rectum should be practised about once a week, and the matter expressed should be examined microscopically to determine the presence of infection. At this stage a tonic should be given, containing iron in an easily assimilated form. This line of treatment, with variations to suit the individual case, should be followed until the shreds in the urine disappear or do not contain infecting organisms, after which a lapse of from two to four weeks in the treatment should be followed by a thorough examination; if this is satisfactory, the patient may be discharged as cured.

The treatment of specific forms, such as tuberculous and syphilitic prostatitis, resolves itself into the systemic treatment of those diseases, and in addition often requires surgical intervention.

Dr. Samuel A. Lewin, of New York, observes:

Having determined the diagnosis in the usual way plus examination with gloved finger per rectum, slight massage is gently made with the examining finger over the whole prostate, and the escaping fluid wiped away after a drop has been caught on a glass slide for examination. Ruling out any condition that may require surgical interference, I divide my cases into acute and chronic prostatitis. The subdivision into follicular, parenchymatous, or simple prostatitis, is of no therapeutic importance, the treatment being the same.

Acute prostatitis.—When the condition permits, I begin with gentle massage of the prostate, after which I pass two fingers along the urethral canal from behind forward, squeezing out whatever discharge may be retained; I then irrigate the entire canal with 2,000 c. c. very warm sterile water, using a return flow cannula. I then advise a hot enema of saline solution and a hot sitz bath twice daily, and to return in two days.

When pain and tenesmus do not permit of massage, I advise the patient to stay in bed with the hips elevated, after hot enema and sitz bath, and prescribe the following suppository to be used morning and night after the bath for three days:

R	Ext. stramonii, . . .	{ 3ā .025;
	Ext. cannabis ind., . . .		
	Ichthyolis,		30;
	Cacao butter, q. s.		
M.	ft. suppositorium.		

For internal medication, I prescribe:

R	Potassii brom.,	4.0;
	Tinct. hyoscyamii,	8.0;
	Tinct. saw palmetto,	12.0;
	Elix. simplicis,	30.0;
	Aquæ distill., q. s. ad.	90.0.
M.	Sign: 4.0 3 q. h.	

When urination is painful and frequent, I give tincture of belladonna instead of tincture of hyoscyamus. For the fever that is often present, I give tincture of aconite 2.0, water 8.0, every three hours, alternating with the foregoing. When cystitis is present I prescribe, alternating with the first mixture:

R	Sod. benzoat.,	4.0;
	Hexamethylenamine,	10.0;
	Tinct. bellad.,	8.0;
	Syrupi simplicis,	20.0;
	Aquæ, q. s. ad.	90.0.
M.	Sign: 4.0 4 q. h.	

In about three or four days the patient comes back much relieved, practically free from pain or spasm, and is able to control the urine. I then begin systematic massage of the prostate every other day, followed by irrigation of the entire urethra with zinc sulphate, 0.5 per cent. in hot solution, to which I add colorless hydrastis fifteen c. c. to 2,000, using a return flow cannula. At the end of ten days, I reduce the massage to twice and then once weekly, keeping up the irrigations, sitz bath, and medication as indicated.

When discharge of pus is persistent, I irrigate with warm silver nitrate solution, one to 3,000, instead of the foregoing solution, always using a re-

turn flow cannula and carefully avoiding the bladder. I never use opium or its derivatives and get excellent results without it. As to diet, I advise light nutritious food, such as milk, eggs, broths, vegetables, etc.

Chronic prostatitis.—In the treatment of these cases, the mental and psychic aspect of the patient must be considered and treated with judicious care. These patients usually make the rounds of the dispensaries and physicians in the neighborhood, and if not handled with firmness and intelligence, soon get thoroughly discouraged and disgusted with themselves and the doctors and remain hypochondriacs and neurasthenics. Such a patient must be made to feel thoroughly at his ease, encouraged, and his confidence gained at his first call. He must be made to understand that his condition is of a chronic nature, that it will require a few months to treat him, and that with patience and perseverance and proper care, he will get well.

Having assured him that his condition is amenable to treatment, I proceed thoroughly to massage the prostate, making pressure over the tumefied and indurated areas that I may find and then irrigate and follow treatment as in the acute condition. In some cases, I advise cold rectal enemas daily, which seem to give more relief than the hot enemas and sitz baths.

If the posterior urethra is involved, I use instillations of silver nitrate 0.1 per cent. into the deep urethra, followed in about five minutes by a hot boric acid irrigation. I instruct the patient, wherever it is possible, to wash the urethra with hot water after urination. Internally I give the following:

R Tinct. saw palmetto,	8.0;
Tinct. staphysagriae,	4.0;
Syr. pruni virg.,	60.0;
Aque, q. s. ad.....	120.0.
M. Sig.: 4.0 q. h.	

When chronic gonorrhea is present, I give, alternating with the foregoing:

R Calci sulphidi,	0.0125;
Cupri arsenitis,	0.003.
M. Sig.: Cap. 4 q. h.	

I find those combinations much better than the santal oil and similar preparations recommended in the textbooks. For the mental disturbance which complicates these cases, and which of course will vary in different cases, I use hypodermic injections every day, or every other day, of either glycerophosphate of sodium, 0.10, with or without strychnine sulphate, 0.001, or sodium cacodylate, 0.06, and in some cases hyoscynamine.

As a general tonic, I prescribe the elixir of the combined hypophosphites, I advise the patient to keep the bowels open, to get plenty of fresh air, and, if possible, outdoor exercise or occupation.

The diet must be light and nutritious, very little meat, plenty of eggs, milk, fruit, vegetables, and if possible sour milk, a glass several times daily. I also advise a warm bath before retiring and a cold shower or sponging of the spine in the morning.

A word of warning as to prostatic massage. I have noticed that some patients lose quite considerable flesh and weight owing to frequent massaging of the prostate. Great care must therefore be exercised.

(To be concluded.)

Hemadenology: A New Specialty.

THE INTERNAL SECRETIONS—THEIR FUNCTIONS AND BEARING ON DISEASE AND THERAPEUTICS.

BY CHARLES E. DE M. SAJOUS, M. D., LL. D.,
Philadelphia.

(Second Communication.)

ORGANOTHERAPY OR THE THERAPEUTIC USE OF ANIMAL DUCTLESS GLANDS.

As stated in the preceding communication (NEW YORK MEDICAL JOURNAL, February 20, 1915), empiricism in therapeutics is incompatible with modern thought. This applies particularly to organotherapy. In no department of therapeutics should it be possible to use remedial agents more intelligently, since we are dealing with substances which actually carry on functions in the body. We possess here a cardinal advantage over drugs in general, which are at best alien substances and provoke their more or less beneficial effects either by stirring up, as intruders, a defensive reaction, by exciting or depressing a given function believed to be deranged, by inhibiting the function of structures through which suffering is produced, etc. Whether our purpose be to compensate for deficient activity of a given ductless gland, to stimulate it, or to influence advantageously, as would a sedative, a tonic, a cardiant, etc., a given organ or symptom, the first requisite is a clear conception of the mode of action of the organic product administered as represented by that of the corresponding organ in the patient's body. Here, however, an obstacle looms up in the form of the uncertainty concerning the actual function of any ductless gland. We have but to study with due care the literature of the subject to agree with Professor W. S. Halsted (1), of Johns Hopkins, who wrote recently: "It must be evident to every one that there reigns the greatest confusion on the subject of the functions of the glands of internal secretion."

The cause of this confusion is not difficult to find. It is the prevailing habit, among laboratory investigators especially, of formulating far reaching hypotheses on too few experimental data and without taking into account the many collateral facts, clinical and pathological, which in most instances militate against their conceptions. This is mainly to be ascribed to undue confidence in individual work. Simply because an investigator has performed a few experiments himself, which experiments often embody, through lack of experience, subtle though fundamental errors, the theory he evolves is deemed worthy of record. In reality, the only real value of such work lies in the experiments themselves, irrespective of any theory, if close scrutiny shows them to have been carried out with due care. The results reached should then stand only as ready segments for the elaboration, when a sufficient number of facts from the same and other branches of science are garnered, to erect a theory—precisely as bricks may be used in the erection of an edifice.

*Hemadenology, from the Greek: *hema*, blood, *adēnē*, gland *lógos*, discourse, meaning thereby, as do ophthalmology, laryngology, and other terms applied to specialties, the aggregate of our knowledge on the ductless or blood glands.

That the prevailing short cut, "quick lunch" method was a misleading one, and one, indeed, very slow in tangible results, owing to the absence of co-ordination in the use of evidence available, I have long urged. It is only by scrutinizing, with the aid of analytic and synthetic reasoning, all the ramifications of a given subject throughout the broad realm of biological science, including particularly clinical medicine, that we can hope to reach durable conclusions. Indeed, the clinical field itself is a vast laboratory often far more productive in its teachings than animal experiments. We have to this effect the testimony of probably the most eminent physiologist of our day, Professor Pavloff (2), when he said, in the course of one of his lectures on the nervous control of the secreting glands of the stomach:

The question as to whether the gastric glands have likewise a special secretory innervation is now a very old one and has had an interesting career. In this matter physiology stood for a long time in sharp conflict with practical medicine. Physicians bringing forward their observations in proof, had long answered the question in the affirmative, and looked upon the existence of secretory nerves to the stomach as undoubted. They had even come to recognize different morbid conditions of the innervation apparatus. Physiologists, on the other hand, had fruitlessly endeavored for decades to arrive at definite results upon this question. This is a striking but by no means isolated instance where the physician gives a more correct verdict concerning physiological processes than the physiologist himself; nor is it indeed strange. The world of pathological phenomena is nothing but an endless series of the most different and unusual combinations of physiological occurrences which never make their appearance in the normal course of life. It is a series of physiological experiments which nature and life institute, often with such interlinking of events as could never enter into the mind of the present day physiologist, and which could scarcely be called into existence by means of the technical resources at his command. Clinical observation will consequently always remain a rich mine of physiological facts.

As already stated, however, and fully recognizing the predominant and invaluable contributions of physiologists to our knowledge of the ductless glands, it is on a broad foundation of facts obtained from *all* the divisions of science that have been fathomed to elucidate a subject, that an inquiry should be based in order to prove fruitful. Such evidence, recorded where possible by men of recognized competence in each special field, supplemented where need be by personal experimental and clinical labors, have inspired my conclusions ever since my work on the ductless glands began. Having no ground to regret this mode of procedure—which would have avoided the prevailing confusion, if it had been generally adopted—it will be adhered to in the present instance.

In analyzing, as much as possible in their physiological sequence, the functions of the various ductless glands, the plan most likely to avoid misleading paths, is one in which the function that unites the greatest number of experimental and clinical data, while fitting in with collateral or indirect data concerning the same organ, is given preference. It is the one which will be carried out in the preparation of these articles.

It is perhaps needless to state that the solutions I will offer will be submitted only as postulates, subject moreover to fair criticism, meaning thereby criticism supported by adequate evidence. Science

embodies the spirit of truth, and to welcome light, particularly where great obscurity still limits human efforts, is a duty which no physician worthy of the name should shirk.

THE THYMUS.

In the words of Howell (3), "The physiology of the thymus gland is very obscure, indeed, practically nothing is known about its functions. . . . It may have some important relationship between it and the reproductive glands. . . . The thymus prevents the excessive accumulation of acid in the body, particularly phosphoric acid or its compounds, and . . . exerts this action probably by synthesizing these acids into nucleic acid or nucleic compounds. . . . There is apparently direct proof that the thymus is connected with growth." To these we may add that it has been considered as the mother tissue of all lymphoid structures, and also capable of fitting out leucocytes for their various functions in the body at large. Such a multiplicity of roles obviously sustains the statement that nothing is known concerning its functions; we shall see, however, that they are all normal though apparent discordant expressions of a single function.

The thymus, as is well known, is generally considered as a temporary organ. While it was at one time believed that its weight increased to the end of the second year, remaining thus until puberty, Hammar, of Upsala, showed that if care was taken to study the organ in absolutely healthy subjects, such as victims of accidents, suicides, etc., it would be found to increase in size from birth to puberty, when it averages in weight twenty-five grams. This represents a considerable increase, the average weight of the organ at birth being approximately one quarter of this—five grams (Testut), 6.7 grams (Thursfield), thirteen grams (Friedleben). Bovaird and Nicoll (4), however, in an examination of 495 consecutive cases, found that while no decrease in weight occurred during the first five years, the thymus could persist or continue to grow in the infantile state, the increase in size being thus a pathological condition.

It is only, according to Hammar, when the thymus reaches twenty-five grams at puberty that it begins to diminish in size—rapidly from fifteen to twenty-five years (five grams), then slowly to fifty or sixty-five years, when it may weigh but 0.73 gram. In the aged it is represented by a small mass of adipose tissue in the anterior mediastinum—Waldeyer's retrosternal adipose body. It usually contains fibrous tissue and small patches or remnants of the thymic parenchyma, thus suggesting the possibility of continued function late in life. The discrepancies in the weights given by the various observers may be accounted for, to a certain extent, by the fact that what has been termed "accidental" involution of the organ, may be produced rapidly at any time through starvation, illness, especially wasting diseases, exhaustion, etc. Such wide fluctuations, in fact, are not witnessed in any other organ of the body, and have an important clinical bearing.

There is thus ground for the belief, sustained by considerable clinical evidence, that the functions of the thymus may not cease completely at puberty,

and in fact persist, though perhaps to a very limited extent, to advanced age.

What is the function of the thymus gland?

A general survey of the literature of the subject, experimental and clinical, evokes as leading clue *some important relation with metabolism as regards the role of phosphorus in the process.*

The first striking feature in this connection is the influence of deficient thymus activity on the skeleton. In disorders of the thymus in which its functions are deficient or inhibited, growth, particularly that of the bones, is stunted. There are discrepancies in the reports of experimenters concerning the effects of removal of the organ, but if this is done completely and care is taken to avoid certain animals, rats for instance, in which supplementary ductless glands are frequently found, and the thymectomy is performed as soon as possible after birth, the results are sufficiently uniform to warrant their acceptance as sound factors in our inquiry. This has been emphasized by the recent labors of Basch (1906), Klose and Vogt (1910), Morel (1911), Matti (1912), and Lampé (1913). In dogs, bone deformities appear about the fourth month; the front paws curve inward and appear too short, while the back paws, also curved inward, appear too long. The cranium is large, flat, and short. Toward the fifth month the animal becomes somnolent, depressed, loses weight, and becomes cachectic, the morbid process progressing until, between twelve and eighteen months later, coma and death supervene.

The clinical picture recalls plainly, as far as the effects on the osseous system are concerned, that of *rickets*. The bones become soft and pliable, sufficiently so in some instances to cause them to yield, provoking various deformities, while the ligaments are elongated. The bones may readily be cut with scissors, in fact, until the cachectic period supervenes; flexibility then gives way to fragility and friability, the bones becoming very brittle. The bony tissue we know is deficient in lime salts. *Osteomalacia* is also characterized by softening of the bones in adults and occurs most frequently in nursing women.

The first conclusion to suggest itself in connection herewith is that thymectomy, rickets, osteomalacia, and other osseous disorders are all due to some impairment in the use of lime by the bones. Indeed, while we know that in the diseases mentioned, there is a reduction of calcium in the osseous system at large, Bracci (1905) found that thymectomy caused a similar condition in the latter and in all tissues. Yet we are brought to realize that the morbid process must be due to deficient use of calcium by these structures, for Basch found that thymectomized animals excreted calcium in considerable excess—a fact sustained by the observation of Soli that thymectomized hens laid eggs deprived of shells. That all this is due to the absence of thymic influence was well shown in 1908 by Sommer and Floecken, who found that the successful implantation of thymus in thymectomized animals caused resumption of skeletal growth.

Deficient use of calcium by the bones being self evident, we are normally brought, knowing the car-

dinal role of calcium phosphate in the composition of bone, to look upon defective formation of this salt as the key to the morbid process. What is the nature of the relationship between the element linked to calcium, i. e., phosphorus, and thymectomy? It is in this connection that light begins to appear.

One of the prominent features of thymic chemistry is the wealth of the parenchyma in nucleinates, the lymphoid cells of the thymus, according to Chittenden (5), containing a nucleoprotein rich in phosphorus, i. e., 3.5 per cent. Huiskamp (6) also found that nucleohiston which contains 3.7 per cent. of phosphorus was the most abundant proteid in the thymus.

This wealth in phosphorus recalls another clinical phenomenon connected with the functions of the thymus, viz., the all important influence which this organ seems to possess in the production of *idiocy*. At Bicêtre Hospital, according to Morel (7), seventy-five per cent. of 408 nonmyxedematous idiotic children ranging from one to five years old, examined post mortem from 1890 to 1903, showed absence of the thymus. At the request of Bourneville, Katz (8) performed autopsies in sixty-one mentally normal children varying in age from one month to thirteen years, who had died of various diseases. In all of these the thymus was present. Conversely, in twenty-eight mentally weak children examined post mortem by Bourneville, the thymus was absent.

This corresponds with the results of complete thymectomy. Basch, Klose and Vogt, Morel and others observed mental disorders in puppies the fifth or sixth month after removal of the organ. The animals appeared idiotic and crushed, slow in hearing the voice or in understanding threatening gestures, or in recognizing their sleeping place, or even their food. They showed great voracity, ate anything—cork, wood, cotton, etc.—and even gnawed their own tissues, their paws, penis, etc. All discerning power denoting intelligence seemed in abeyance. Concomitantly, both in idiotic children and lower animals, owing to absence of the thymus, bony deformations such as those previously mentioned are frequently observed. That phosphorus is a fundamental constituent of brain cells as well as of osseous tissue need hardly be emphasized.

Another clinical phenomenon due to impaired activity of the thymus is *infantile marasmus*. In 18 cases of this disorder reported by Rührh (9), this organ was the only one which showed lesions. R. L. Thompson (10) also found marked atrophy of this organ in twenty cases of marasmus in infants under one year old. Atrophy of the thymus is regarded by Dudgeon (11) as the most characteristic feature of the disease, a view concurred in by Rohrer, Bovaird, Nicholl, Warthin, Rachford and others. Friedliebén urged as far back as 1858, in fact, that "the size and condition of the thymus is an index to the state of nutrition of the body."

We are thus dealing with an organ which, while itself capable of supplying nucleins rich in phosphorus, is clearly connected pathogenically, when its functions are inhibited, with disorders due to lack of phosphorus, such as rickets, retarded growth, idiocy, marasmus, etc. The conclusion that the nu-

cleins represent the connecting link between the gland and the tissues is self evident.

How are the thymic nucleins supplied to the tissues?

That the thymus supplies a true internal secretion is no longer believed. All the methods used in the study of other glands such as the thyroid, the adrenals, etc., have failed. The slight effect noted on the blood pressure does not militate against this view; nor do even the beneficial effects obtained in various disorders due to deficiency or absence of thymic activity, from the expressed juice or other preparations of the organ, since they all contain the characteristic nucleins. The bulk of available evidence points to another mode of transmission, viz., *through the agency of lymphocytes which develop in the thymus.*

This feature of the problem, the manner in which the thymic nucleins act in the tissues, the signs indicating insufficiency of the thymus, the diseases in which thymic preparations are indicated, etc., will be considered in the next article.

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(To be continued.)

Therapeutic Notes.

Vascular Gymnastics in the Treatment of Vasomotor Inertia.—Dausset and Hanriot, in the *Bulletin de l'académie de médecine* for April 14, 1914, recommend the use of alternate hot and cold baths, with gradual transition from one extreme to the other, for the purpose of restoring vasomotor efficiency in the many cases of sluggish nutrition and obesity, as well as in the cardiac cases, in which it has been lost. The technic followed in the authors' cases was as follows: After resting in the recumbent position for ten minutes, the subject is immersed in a bath at 35° to 37° C. A comfortable position is assumed and the muscles are allowed to relax throughout the procedure. Hot water is now gradually added to the bath, with careful admixture, in such wise that the temperature rises in six or seven minutes to from 42° to 47° C.—occasionally even 50°. When the temperature reached is deemed high enough, the patient is allowed to remain in this water for a minute or two; or, cold water is gradually poured in until chilliness or other discomfort appears. After the bath, which should not exceed twenty minutes in duration, the patient again rests for ten minutes.

A gentle, gradually oncoming reaction, with euphoria, follows the bath. After a series of baths there is noted a tendency to increased frequency of micturition, with thirst, loss of weight in obese patients, and an increased resistance to cold. During the bath the pulse rate increases gradually up to

100 or 110 a minute, then falls to about 60 as the temperature is lowered from 47° to 20° C., thereafter again showing a tendency to rise, even if the temperature of the bath is further lowered. The systolic blood pressure, after a brief preliminary decrease, shows a rise proportional to the rise in the temperature of the bath, then falls during the cold immersion, and finally returns about to normal. The diastolic pressure, on the other hand, varies inversely with temperature of the water, the pulse pressure increasing, therefore, during the warm phase. The effect of the bath is thus a species of vascular gymnastics, with pronounced but gradual variations in pulse rate and blood pressure. The technic of the bath may, of course, be varied according to the reacting power of the patient, the ultimate aim being to procure a normal reaction of the pulse and blood pressure. The authors have found such baths an excellent adjuvant to diuretic and dietetic treatment in cases suffering from slowing of the general metabolic and nutritive processes, in association with vasomotor inefficiency.

Treatment of Tetanus.—Demmler, in *Bulletin de l'académie de médecine* for November 3, 1914, calls attention to the value of chloral hydrate in doses larger than those generally recommended for the treatment of this disease. Stress is laid on the fact that where the nervous system is in a condition of overexcitation, as is the case in lockjaw, a considerable amount of the remedial agent used acts merely in overcoming this condition of exaggerated cellular functioning, and the drug becomes toxic only when the nerve cells have practically resumed their normal degree of functional activity. The validity of this view is supported by the successful effects of massive doses of opium and of strychnine in tic douloureux and delirium tremens, respectively. Obviously, in order to prevent the oncoming of toxic effects as the nerve cells resume their normal condition, care must be taken to reduce the dose at the proper moment. In tetanus, the author gives an initial dose of six grams (90 grains) of chloral hydrate, which is the maximum amount customarily given when a hypnotic effect is required or analgesia sufficient to permit of the performance of a minor operation is to be procured. Six hours later, another dose of six grams is given if the tetanic manifestations have not yielded or if the effect of the drug has already worn off. The chief aim is to overcome the excessive irritability of the nervous system, which becomes manifest in convulsions even merely from the walking of the attendant over the floor, or his talking in too loud a tone of voice. As long as these evidences of an abnormal state of the nerve cells continue, the chloral hydrate should be pushed. When twenty grams (5 drams) of the drug have been given, however, the subsequent doses should be made smaller. Convulsive seizures by this time being no longer brought on by external stimuli, the amount used should now be more or less rapidly carried down to the normal hypnotic dose. The physician should be ready to resume giving the large doses if the excessive nervous excitability reappears. The author refers to cases of tetanus in which medication by chloral hydrate in the manner described was followed by happy results.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal and The Medical News.

A Weekly Review of Medicine.

EDITORS

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Address all communications to

A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,
66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transporta-
tion through the mail as second class matter.

Cable Address: Medjour, New York.

NEW YORK, SATURDAY, MARCH 6, 1915.

THE TRANSMISSION OF MEASLES.

The discontinuance of fumigation after contagious diseases by the New York board of health as a measure in keeping with the most modern advances on the subject, helps to recall to mind that there has been a radical change in the ideas on the mode of transmission of the contagious diseases. This is particularly the case with measles. This disease was always considered air borne, and it was believed that contact was not necessary. As early as 1852, Myre showed that this disease was transmitted through the agency of the nasal and the buccal secretions. This has lately received corroboration by Anderson and Goldberger, of the hygienic laboratory. The infection is a droplet infection from these secretions and is confined to the immediate vicinity of the patient—within the droplet radius. But fomites—clothing, linens, and other material from the patient—may carry the contagion.

The air borne character of the contagion has led many of the children's hospitals on the continent to discontinue separate isolation rooms for these patients, and to treat them in the open ward, surrounded perhaps with a wire screen, as a reminder to the nurse of the character of the disease and the necessity for care in handling. This method has resulted in a large saving of expense and annoy-

ance. Except for the carrying of the contagion of measles on fomites, there are no carriers of measles in the same sense as there are carriers of diphtheria, typhoid fever, cholera, etc.

The virus of measles is contained in the blood at least twenty-four hours before the eruption, but begins to fade about twenty-four hours thereafter. During this period monkeys have been successfully inoculated. The contagious stage of measles is the prerruptive or catarrhal stage. It is during this period that the disease is transmitted; and the diagnosis must be made and proper isolation is necessary to prevent spread. Children who are known to have been exposed to infection need not necessarily be excluded from school if they are examined daily for the presence of catarrhal symptoms. The absence of such symptoms would mean the absence of the agencies for the transmission of the disease.

The branlike, fine desquamating epithelium in measles has always been considered the principal means of transmitting the disease, and the quarantine was never raised until the total disappearance of the flakes. This has not been borne out by experiment, and the theory is now discarded. In two or three weeks and after the disinfection of clothing and the like, the quarantine can be raised without fumigation and without fear.

The danger of measles is not discounted by this new procedure. When improperly cared for, and in the presence of complications, measles is one of the most serious diseases, although the laity holds it very lightly. Among many savage tribes measles alone, even without complications, has a very high death rate. In them the disease has been known to wipe out whole communities and to rival the mortality from plague during the middle ages.

THE PATHOLOGICAL PHYSIOLOGY OF HYPERTROPHIC ALCOHOLIC CIRRHOISIS.

Anatomically, the possible association with biliary lithiasis, the existence, practically almost constant, of lesions of the intrahepatic biliary tracts found in microscopic sections of livers the seat of alcoholic cirrhosis, and lastly the frequency of associated lesions of the pancreas, clearly demonstrate that this type of cirrhosis develops only on a specially prepared soil, which may very properly be termed the biliary soil.

The question of the toxicity of various alcohols in the production of cirrhosis is still a much mooted point, and for some the multiplicity of the anatomical types depends on the varying action of different agents of irritation; but it is by a prolonged ac-

tion on the liver of no matter what kind of alcohol that results in cirrhosis, and the latter is simply a reaction of organic defense, a process which depends entirely upon the individual and the soil, so that the various anatomical types should be sought for here. Two persons may consume equal quantities of the same brand of liquor; one will acquire Laënnec's cirrhosis and soon die, while the second will present the hypertrophic variety and live for some time.

Vigorous subjects are more prone to the hypertrophic type, and in this process there is evident reaction, as is clearly shown by hepatic and splenic hypertrophy and the development of a well marked collateral venous circulation. If this defensive reaction is pushed to the extreme, an anascitic cirrhosis is realized. The absence of the ascites is due either to a sufficient permeability of the liver, to the portal circulation, or to adequate drainage of the portal blood by the collateral veins. At times the venous dilatation occurs in the hepatic gland itself, and this ecstasis may be enormous, while in other instances the circulation is reestablished by the deeper veins, thus explaining the absence of both ascites and abdominal collateral circulation in cases of marked sclerosis. Likewise, it explains the development of gastric and esophageal varicose veins, giving rise frequently to profuse and even fatal hemorrhage. It is, therefore, the mechanical theory which explains the absence of ascites and the exaggerated development of a collateral circulation.

But, according to Rendau, the liver does not play a direct part in the pathogenesis of the ascites, and it is to the peritoneum that this role should be given. In opposition to the mechanical theory, we are offered that of inflammation. Froment, to explain this hypothesis, based his reasoning on the lesions of perihepatitis present, but Gilbert seems to have conclusively shown that ordinary ascitic fluid is quite the same as that of noninflammatory serous collections, that is to say, it possesses a low specific gravity (1,010 to 1,016), an alkaline reaction, and contains little solid matter to the extent of from twenty to twenty-five grams to the litre, fifty per cent. of which is composed of albuminoid matter (serum globulin). It does not contain fibrinogen, consequently it is not coagulable spontaneously. In a word, the fluid in cirrhotic ascites is simply a dilute serum.

For that matter, Alexandre was not able to discover a leucocytosis in these cases, but in some tuberculosis has clearly played a part, but this is the exception, and in the vast majority of cases there is always a preascitic period, and when the ascites appears it does so at the same time as other symptoms of portal hypertension.

STANDARDIZATION OF PITUITARY EXTRACTS.

More than half a century has elapsed since Bell and Hick made a thorough physiological investigation of the active principles of the pituitary body and, as a result of their studies, recommended the use of the extract as a uterine stimulant. Since that time a score of investigators have added to our knowledge, until now some form of pituitary preparation forms part of the armamentarium of nearly every obstetrician. It is the posterior lobe of the gland which contains the principles which have a selective action upon the uterine muscle. Although the number and nature of these active principles have not yet been exactly determined, it is known that an extract either of the whole gland or of the posterior lobe alone, contains an agent of marked therapeutic activity. The indications for the use of the posterior lobe extracts fall broadly into three classes; first, for the production of local ischemia in a manner allied to the use of epinephrine for the same purpose; second, to raise blood pressure and combat shock, and, third, to increase the number and force of uterine contractions. The selective action upon the uterine muscle is so marked that recent observers have begun to sound warnings against the careless use of "pituintrin," as it has been shown that rupture is entirely possible unless the os is fully dilated and the pelvic outlet wholly unobstructed.

Not a few of the accidents reported may be due to a lack of exact knowledge of the strength of the preparation used. A study of the various extracts upon the market has been recently concluded at the Public Health Service hygienic laboratory by George B. Roth, and the results are published in *Bulletin* No. 100. It appears that the ratio of variability between the strongest and the weakest preparations is about seven to one. The tests were made on samples obtained from several well known commercial houses which manufacture and sell the product to physicians and druggists. These houses are all reputable and it does not seem likely that the fault lies in deliberate neglect of known precautions for proper standardization; even Roth himself is not able to offer any explanation for the wide range of physiological activity manifested. Although the animal source of the extract varies, being in some instances cattle, in some sheep, and in others horses, this is not believed to offer an adequate explanation, because the same wide range of activity was noted in preparations obtained exclusively from one species.

It is to be hoped that a therapeutic agent so useful as pituitary extract will not be allowed to fall

into disrepute for lack of knowledge concerning the proper dose. As the matter now stands it does not seem unreasonable to ask all the manufacturing concerns to adopt some arbitrary uniform method of standardization so that the physician may have a definite conception of the amount of reaction to be expected from a given dose of the drug.

THE FEEBLE MINDED.

The poor we have with us always, but instead of taking it for granted, we now approach the problem from the point of view of cause and effect. Inasmuch as poverty is so closely associated with disease, crime, and immorality, we may find that there is some one factor underlying directly all these conditions. Although we cannot say that it is the sole cause, nevertheless, we can safely maintain that a most important cause is feeble mindedness, with all that that term implies. Speaking generally, it refers to that condition in which the mental age has not kept pace with the physical. This may vary from the slightly backward to the completely idiotic; the latter constitute a class easily and quickly picked out, but not so the former.

If the past could be tabulated accurately, what thousands of the shiftless, the immoral, and the criminal would be found lacking in mental development. In late years, with the refinements of the Binet-Simon test and the greater experience of those now using it, we have a method, that even if it is not mathematically exact, has proved of the greatest value.

Comparisons drawn from the results obtained in thousands of examinations show that we now have the means of telling whether the individual is sufficiently well developed mentally to be useful to society. Examinations of school children, of inmates of reformatories, of those in jails show very interesting results, that should be investigated carefully by all who are interested in the improvement of mankind. It has been found that a very large percentage of the foregoing classes of humanity are not mentally able to fulfill their social obligations. Many of them are but slightly incapacitated, and to all ordinary forms of observation would seem normal, yet when more exact methods are employed, their true mentality is shown.

If these derelicts were recognized in their youth so that they might be sent to a home for the feeble minded, the State would be saved the expense of their care when they receive the mark of the criminal. Incidentally, when under State care the question of their marriage would be looked after. Inasmuch as the majority can be recognized by the time they are twelve or fourteen years of age, much good

could be accomplished by a careful examination of all school children. As in medicine in general, it is prevention that is the great object.

Every mental deficient that is taken care of by society in general means the removal of one who is a potential burden on the community, likely to be punished some day for a crime that he should never have been permitted to commit.

MORE POWER TO THE HEALTH DEPARTMENT.

Critics of one or other of the multifarious activities of the Department of Health of the City of New York can hardly fail to agree that its discovery of its power to control common carriers is a fortunate one for the people. Basing his order on a bacteriological examination of the air in a cross-town car, Doctor Goldwater is in a fair way to secure healthful and decent conditions throughout the city street railroad lines by the precedent established in compelling a minor traffic route to furnish suitable accommodations for its patrons. Now that the department is found apparently to have a giant's strength, we trust that this will be used scientifically and skillfully rather than mercifully as has too often been the custom in the past when the people's representatives have dealt with corporations.

ACCIDENTAL VARIATION IN MODERN BULLET WOUNDS.

The extent of damage done and the subsequent history of a wound inflicted by one of the new bullets, depends altogether upon what tissues are penetrated; at least that is the inference from reading of two cases which Alexander MacLennan, of the Territorial Medical Corps, reports in the *Glasgow Medical Journal* for February, 1915. Both wounds were accidental. The first was due to the soldier's dragging his rifle after him when crossing a railing, which caused its discharge within a range of thirty inches. The bullet entered above and to the left of the left nipple and passed out immediately to the axillary side of the left scapula, both entrance and exit wounds being trivial. There was no hemoptysis, although the chest was filled with blood, no evidence of fracture of a rib, and no other symptoms of consequence; the bullet had met with no serious resistance. In the second case, however, a man accidentally jerked the trigger of his rifle while cleaning it, and the bullet entered just under the tubercle of the tibia of a comrade standing three yards away, making a tiny wound of entrance, but involving the entire calf in its exit, blowing away the skin and everting the muscles. The bone was found to be comminuted, both anterior and posterior tibials were severed, and the posterior tibial nerve was contused, causing both sensory and motor paralysis. The capillary circulation, at first

adequate, soon became obstructed by inflammatory swelling, gangrene set in, and amputation was necessary; the kneecap was retained. Recovery was perfect. No trace of the bullet was found.

ANTITYPHOID INOCULATION OF CANADIAN SOLDIERS.

Captain Harry Morell, of the Canadian Army Medical Corps, is cited in the *British Medical Journal* for February 13, 1915, as having stated of the first Canadian expeditionary force, when it was at Valcartier, P. Q., that 27,000 men submitted to antityphoid inoculation, involving 57,000 injections, probably the largest record in one force at one time. No cases of severe constitutional reaction, nor any infected arms followed the injections. The primary dose of the serum was made up so that one c. c. represented 500 million killed bacilli; the secondary dose contained one billion. The Record syringe, of ten c. c. capacity, was used so that one syringe furnished ten men. The usual site of injection was the deltoid region; the skin was first painted over with ten per cent. tincture of iodine. An injection consumed about seventeen seconds and two operators could easily inoculate 1,000 men in one morning. After the needle was withdrawn, it was wiped with absorbent cotton impregnated with alcohol and then flamed in a lamp.

PHTHIRIASIS AGAIN.

The *Lancet* for February 13th contains further suggestions from correspondents as to the prevention and cure of lice in the army. Frederick William Alexander recommends liquid paraffin, B. P.—not ordinary paraffin, which is highly inflammable—after the use of methylated spirit (denatured alcohol) to which mercury bichloride has been added, half a grain to the ounce. W. Knowsley Sibley recalls that in his textbook on skin diseases he has noted that "sulphur wrapped up in a piece of flannel or in a porous bag and worn about the person next to the skin acts in many cases as a preventative (*sic*)."

News Items.

Obstetrical Societies to Hold Joint Meeting in Philadelphia.—Arrangements are being made for a joint meeting of the New York Obstetrical Society and the Philadelphia Obstetrical Society, to be held in Philadelphia some time in April.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, March 8th, Samaritan Hospital Medical Society; Tuesday, March 9th, Pediatric Society; Wednesday, March 10th, County Medical Society; Thursday, March 11th, Polyclinic Ophthalmic Society, Pathological Society; Friday, March 12th, Northern Medical Society, Psychiatric Society.

Changes in the Health Department of Kansas City, Mo.—Dr. W. S. Wheeler has resigned as health commissioner, his resignation to take effect on April 1st. Dr. J. S. Barbee, chief of the food and dairy department, has also resigned, his resignation effective on March 15th and the position of assistant health commissioner, held by Dr. Hasbrouck DeLamater, has been declared abolished after April 1st. The new health commissioner, who will be named later, will be paid an adequate salary and will be required to devote all his time to the duties of the office.

Smallpox in Mexico.—An epidemic of smallpox at Monterey, Mexico, was reported on February 10th to the United States Public Health Service. In the early part of January the disease was epidemic in Vera Cruz, but the outbreak has been brought under control.

Hookworm in Guatemala.—Representatives of the Rockefeller Foundation arrived in Guatemala City, Guatemala, on Tuesday, March 2d, for the purpose of investigating hookworm disease in that city. The health authorities are giving all possible assistance in the work.

Harvey Society Lectures.—The tenth lecture in the course will be given on Saturday evening, March 13th, at the New York Academy of Medicine by Professor Elliott P. Joslin, of Harvard University, on Carbohydrate Utilization in Diabetes. Based upon Studies of the Respiration, Urine, and Blood.

New York City Board of Health Uses Moving Picture Shows.—Some of the moving picture houses in New York city are using between the moving picture films a slide reading as follows: "Advice from the Department of Health, City of New York. Don't make the patent medicine faker rich. His claims are always cunning lies. When you feel sick go to your family doctor. He is your best friend."

Making Pin Money Out of the Doctor.—Readers are familiar with the somewhat extravagant claims of magazine correspondents who have made "pin money" by unusual industries carried on at home; it is refreshing to read in a woman's magazine, says the *Outlook* for February 24th, the letter of a contributor who says that her plan was based on the fact that physicians are often so busy that they have no time to do their own bookkeeping, and that for one such she undertook to do this work for the sum of "five dollars a month." The work took only a small part of her time, while the sum named seems really worthy to be called pin money.

A Correspondence Course for Health Officers.—The University of Wisconsin announces a special correspondence course for health officers, which has been arranged to meet the demand for a better preparation for local health administration. It is designed for health officers not able to take a regular course at the university, as well as for others desiring to pursue the study of health administration. The topics treated in the course include laws and regulations, vital statistics, health surveys, transmission of disease, nuisances, and the administration of a health department. The administration part of the course dealing with inspection work, visiting, nursing, medical inspection of school children, quarantine, isolation, disinfection, use of the laboratory, registration, etc.

The Death of Professor Jacobi.—Dr. Eduard Jacobi, professor of dermatology and syphilology at the University of Freiburg, died on January 9th, from an attack of pneumonia contracted while acting as consultant to the German Army of the upper Rhine. When the war broke out last August, Professor Jacobi volunteered his services and was put in charge of venereal disease patients who were brought into Freiburg. Later he went to the front. Professor Jacobi was born in Liegnitz and studied in Breslau, where he was assistant in the dermatological clinic of Neisser, in Wurzburg, and in Berlin. In 1889 he became assistant to Kraske at Freiburg, where he established a dermatological clinic. He is best known here by his *Atlas of Dermatology*, which has reached its fifth edition and been translated into many languages.

Personal.—Dr. F. X. Dercum, of Philadelphia, has been made consulting neurologist to the State Hospital for the Criminal Insane.

Dr. Charles H. T. Townsend, of Washington, D. C., delivered the principal address at the tenth annual meeting of the Medical Society of the County of Tompkins, N. Y., held in Ithaca on Tuesday, February 16th, his subject being *Verruga and Its Transmission*.

To Surgeon General William C. Gorgas, United States Army, has been awarded the Louis Livingston Seaman medal for progress and achievement in the promotion of hygiene and the mitigation of occupational disease.

Dr. Mary Fish-Flecks, of 255 Macon Street, Brooklyn, is giving a series of lectures under the auspices of the Y. W. C. A., on the subject of motherhood. The lectures are given on the first Wednesday in March, April, May, and June, at places designated by the association.

The Broad Street Hospital.—An organization has been formed of bankers, lawyers, business men, and physicians for the purpose of establishing a hospital in the financial district of New York. Arrangements have been made for the leasing of four floors in the eight story building at 109-111 Broad Street for temporary quarters, with an option on the rest of the building when it may be needed. The hospital is to do both general and emergency work and will contain at first twenty-four beds and six private rooms. A special feature will be a department for x ray examinations and electrical treatment. There will be a nominal charge for ward beds and a moderate one for private rooms. The organization committee is working for an endowment of \$1,000,000 to carry on the work of the institution. Meanwhile thirty-six physicians have pledged their services and each has also agreed to give \$120 to the hospital for the first year. Dr. A. J. B. Savage is superintendent.

The Crusade against Rabies in New York.—An important legal decision has just been rendered by Justice Lehman of the Supreme Court upholding the right of the Department of Health to enact and enforce an ordinance providing for the muzzling of all dogs in the streets and other public places of New York. The department has always insisted that the enforcement of dog muzzling was only a part of the campaign necessary to eradicate rabies, the destruction of stray dogs and cats being equally important. This part of the work is in the hands of the American Society for the Prevention of Cruelty to Animals, and their reports show that many thousand stray dogs and cats are destroyed each month. In January of this year 10,774 cats and 3,567 dogs were destroyed. The Department of Health states that there has been a decided falling off in the number of cases of dog bite in New York during the past six months, and laboratory examinations indicate a decrease in the number of rabid animals.

A Low Death Rate in New York Last Week.—The number of deaths from all causes reported during the past week was 1,516, far below the figure reported for the corresponding week in 1914. The decrease namely 294 deaths amounts to 3.29 points in the death rate for the week, equivalent to a relative decrease of 366 deaths.

The most noteworthy feature of the week's mortality was the great decrease in the number of deaths reported from influenza. Moreover, in harmony with our experience of the past, there was also a decreased mortality from those causes of death with which influenza is often associated. Thus, the pneumonia deaths showed a decrease in the absolute figures of 80; pulmonary tuberculosis 21; organic heart diseases 73. The mortality from infectious diseases remained fairly constant, with the exception of diphtheria which showed a considerable decrease. The only age group in the population that showed an increased mortality was that of infants under one year of age, there having been eight more deaths reported in the past week than in the corresponding week of last year. In all other age groups the mortality was considerably below the average. The death rate for the first nine weeks of 1915 was 13.91 per 1,000 of the population, compared with the rate of 15.06 during the corresponding period in 1914, a decrease of 1.17.

American Aid for the Belgian Red Cross.—Madame Depage, wife of the Belgian surgeon who is physician to King Albert, has arrived in this country for the purpose of collecting funds for the Belgian Red Cross field hospitals. The Belgian Red Cross (like the Belgian army) has found itself confronted by an enormous task and has bravely undertaken it. Its equipment was originally too small to meet the requirements of such a world war, and now its equipment and supplies have been to a large extent exhausted in its work of caring for the wounded Germans as well as Belgians. Madame Depage comes as the representative of the Melis-Depage Executive Committee which was appointed by King Albert to provide Belgian Red Cross field hospitals. Her husband, Dr. Antoine Depage, who was president of the International Congress of Surgery in New York last April, has sent, through Madame Depage, a letter to the members of the International Congress of Surgery, in which he describes existing conditions and appeals for aid to secure the means necessary to carry on the work of the Belgian Red Cross. All supplies and applications from doctors and nurses should be sent to the American Red Cross, 1025 H Street, Washington, D. C. All contributions of money should go to

J. P. Morgan & Co., Wall Street, New York, marked "Melis-Depage Fund." Further information may be had of Dr. Richard Harte, treasurer, 1503 Spruce Street, Philadelphia, or of the Belgian Legation, 2011 Massachusetts Avenue, Washington.

Contributions to the Relief Fund for Belgian Physicians.—The Belgian Relief Fund for all classes, according to the *Outlook* for February 24th, now totals nearly a million dollars in cash, over \$700,000 in foodstuffs, and something over \$40,000 in clothing. Only cash contributions are now desired. They will be promptly turned into food for rush shipment to the famine zones of Belgium.

The American Red Cross makes a similar record. Its administrative expenses not exceeding one per cent. Several hundred bales and cases of bandages and other articles sent by it to the Belgian Red Cross have reached their destination, as have over fifty boxes of clothing sent by it for the Belgian refugees in Holland. The American Legation at The Hague has stated that every package and article sent by the American Red Cross has been properly delivered. The Commission for Relief in Belgium has now forty-seven ships engaged in carrying foodstuffs to that country.

Our readers are reminded that Dr. Claude L. Wheeler, editor of this JOURNAL, is authorized to receive subscriptions both to the Fund of American Physicians and to that organized and managed by Dr. H. Edwin Lewis, editor of *American Medicine*. The Academy of Medicine, of this city, has also decided to lend its influence to increase subscriptions, according to the following announcement:

The New York Academy of Medicine has appointed a committee to receive contributions to the fund for the relief of the Belgian physicians and surgeons who have suffered as a result of the present war. This committee will keep in close touch with those in other places who have the same object in view, and is convinced that funds contributed can be expended wisely and economically and without duplication and waste.

The Academy committee believes that this fund should be administered, not only to relieve the present suffering, but also to aid in the solution of the serious problems which will have to be faced at the conclusion of the war. It is beyond question that our confreres in that country have undergone and are still undergoing extreme privation, and that their rehabilitation in practice will be slow and difficult.

Subscriptions to this fund will be received by either member of the committee appointed by the Academy of Medicine. Checks received will be deposited in the Astor Trust Company of New York and a list of subscriptions will be published from time to time in the medical journals of New York. *Committee:* W. B. Coley, 40 East Forty-first Street; W. K. Draper, 123 East Thirty-sixth Street.

Dr. F. F. Simpson, of Pittsburgh, treasurer of the Committee of American Physicians for the Aid of the Belgian Profession, announces the following contributions received last week: The Monmouth Medical Club, Monmouth, Ill., \$10; the Adams County Medical Society, Quincy, Ill., \$42; Dr. Charles H. Smith, Uniontown, Pa., \$25; Dr. Frederick J. Walter, Daytona, Fla., \$10; Dr. Austin C. Brant, Canton, Ohio, \$5; Dr. William D. Byrne, Chicago, \$5; Dr. Simon Levin, Lake Linden, Mich., \$5; Dr. Miles F. Porter, Fort Wayne, Ind., \$5; Dr. J. L. Duncan, Pittsburgh, \$10; Dr. J. M. Patton, Vandergrift, Pa., \$1; Dr. N. B. Williams, Perkasie, Pa., \$1; Dr. Wilson F. Phillips, Dorchester, Mass., \$5; Dr. Donald C. Balfour, Rochester, Minn., \$25; Dr. Austin Flint, Jr., New York, \$25; Dr. Evan T. Steadman, Hoboken, N. J., \$10; Dr. John B. Nichols, Washington, D. C., \$10; Dr. Hermann G. Klotz, New York, \$5; Dr. George P. Coopernail, Bedford, N. Y., \$5; Dr. K. I. Sanes, Pittsburgh, \$25; Dr. Herman F. Vickery, Boston, \$25; Dr. H. H. Atkinson, Fordyce, Ark., \$5; Dr. Archibald MacLaren, St. Paul, \$25; Dr. Helen C. Putnam, Phoenix, Ariz., \$25; Dr. J. D. S. Davis, Birmingham, Ala., \$5; Dr. J. M. Popp, New Castle, Pa., \$5; Dr. Horace Binney, Boston, \$5; Dr. Warren Wilson, Northfield, Minn., \$5; Dr. Gibbs Biscoe, Pendleton, Ark., \$5; Dr. Eleanor Boulton, Philadelphia, \$5; Dr. O. L. Ferry, Elkins, W. Va., \$2; Dr. John F. Getter, Belleville, Pa., \$2; Dr. W. H. Witt, Nashville, Tenn., \$5; Salt Lake County Medical Society, Salt Lake City, \$50; New York Medical Union, New York, \$100; The Montgomery County Medical Society, Dayton, Ohio, \$304.50; total, \$867.50.

A Denial from the General Memorial Hospital.—On Friday, February 19th, the *New York Times* featured an article on a new cancer serum, said to have been devised at the General Memorial Hospital and used with curative effect in hopeless cases in the last stages of the disease. So much technical detail was interwoven in the statement as to make it appear that the report had been inspired from an authoritative source and such extravagant claims were credited to the medical board as gravely to impugn their scientific judgment if not their personal veracity.

Although prompt denial of the authenticity of the article was made by a member of the Board of Managers of the Hospital and published in the *Times* on the following day, the medical board feels that a more detailed reply is owing to the medical profession, and to such portion of the public as is within their reach.

While it is impossible to discuss in detail every error in the report, it is possible categorically to deny the chief assertions made in the article, which we wish to do as follows:

1. "The therapeutic agent is a serum of a kind never before used." We are not at present using at the Memorial Hospital any serum whatever.

2. "It is the opinion of those watching the effects of the new serum that it has already superseded the use of radium and x rays." No such opinion is held by any member of the board regarding any treatment ever employed at this hospital. On the contrary, very elaborate equipment with both these physical agents is constantly being employed at the hospital to the limit of capacity and we see no indication that the demand for radium and x ray is likely to diminish.

3. The article imputes to us the belief that recurrences after disappearance of cancer under radium treatment are frequent and sometimes more malignant than the original disease. We disclaim any responsibility whatever for this opinion and are not prepared to express judgment on the ultimate effects of radium.

4. "Patients afflicted with cancer of the breast and involving the adjacent smaller glands have been successfully treated by the serum." The only encouraging results we have had with this group of inoperable cases have been with the x ray and here our observations agree with those of radiologists generally.

5. The reference to two specific cases of epithelioma of the temple, and cancer of the tongue, said to have been cured by this serum, do not correspond with any observations made in this hospital. There have been no such cases in the institution.

6. "They forecast this report as one of the most important contributions to science emanating from the medical profession of the country." We decline to accept responsibility for any such promise. We have no such report in contemplation. We know of nothing that seems likely to prove a constitutional remedy for advanced cancer. All we hope to do at the General Memorial Hospital is in the line of painstaking study of different forms of cancer, the persistent application of well attested remedies and palliatives in the disease, and the investigation of such other methods as present a sound theoretical basis, always with strict regard to the interests of the individual patient.

7. Finally we desire to state that the article in the *Times* was published against the energetic protest of the only member of the board who was interviewed in regard to it.

In an editorial comment, on February 22d, the *Times* states: "Real newspapers will continue to exercise their own judgment as to what they will or will not print. That is their business and some of them perform it perhaps with a sense of responsibility, as deep as is that of the most ethical member of the profession."

Nevertheless we submit that as a result of publishing the statement, in question, the work of the hospital has been seriously interfered with, the time of its staff has been wasted, the seeds of misunderstanding and mistrust have been sown, the good name of honest investigators in a difficult field has been jeopardized, and false hopes have again been roused in the minds of unfortunate sufferers all over the country.

For the Medical Board, General Memorial Hospital,
JAMES EWING.
W. B. COLEY.
S. P. EEBE.
RICHARD WEIL.

Auscultatory Phenomena of the Larynx in Croup and Pseudocroup, by A. Levinson.—The differential diagnosis can be made by means of the stethoscope. There are two areas over which the stethoscope is placed. The one is over the uppermost part of the larynx, directly over the thyroid cartilage, which, in children, is on a level with the third cervical vertebra, and the other area is over the suprasternal fossa. In the latter location the stethoscope is placed in the median line; in the former location, slightly to the left of the median line. The ordinary bell of the stethoscope can be used, although a flatter bell can be used to better advantage. Over the normal larynx of a child a supping sound is heard in inspiration and a similar, although somewhat longer, sound in expiration. In pseudocroup, an indistinct tone similar to that made in pronouncing the letter M is heard over the thyroid cartilage in inspiration and a long drawn out supping sound is heard in expiration. Over the suprasternal fossa moist rales are heard in this condition both during inspiration and expiration, the sounds over the lungs being normal. In croup the sound heard on inspiration is deep and rough and the inspiration is prolonged and is somewhat similar to the pronunciation of the letter V. In advanced stenosis rales are not heard except when a bronchitis coexists, in which event rales are heard scattered over the larynx, the breath sounds remaining deep and dry.

Treatment of Syphilis with Copper Salvarsan, by John Fabry and Johanna Selig.—The preparation contains about twenty-four per cent. arsenic and 11.6 per cent. copper. It possesses the following advantages over the other preparations of salvarsan: Smaller doses of arsenic are required to cause disappearance of the symptoms; the dose of arsenic being smaller, the injections can be given at shorter intervals; the patients tolerate the injections well and no untoward symptoms have been noticed. Main objections to its use are—preparation of the solution is very complicated and can be carried out only in a hospital; cases cannot be treated ambulatorily, which is the aim in salvarsan treatment. The decrease in the Wassermann reaction is not as marked as when salvarsan is employed. It acts in all three stages of syphilis and is a remedy which influences syphilitic symptoms quickly and positively.

Balantidiosis Treated with Emetine, by Relli-Axter Haberfeld.—The patient had suffered for four months from diarrhea, the number of stools averaging about twelve daily and containing pus and at times blood. No fever was present and the internal examination showed the organs to be normal. Examination of the stool revealed the presence of *Balantidium coli*. Emetine was injected subcutaneously in the dose of 0.03 gram, and during the next twenty-four hours the patient had but one stool compared to eight the previous day. The injection was repeated daily and the effect was the same. There was but one stool daily and the nature of the stool had changed. The consistence of the stool in-

creased so that it was no longer fluid and the pus disappeared. After the third injection no balantidia could be found. After 0.25 gram emetine had been injected the patient was discharged and remained cured. The only unpleasant accompaniment of the treatment was the fact that at every injection site a small itching eczematous patch appeared, which, however, responded very readily to treatment with salves.

WIENER KLINISCHE WOCHENSCHRIFT.

February 4, 1915.

Gunshot Wounds of the Spinal Cord, by Otto Marburg and Egan Ronzi.—Contrary to the plan followed in the treatment of gunshot wounds of the brain, it has been found best in treating gunshot wounds of the spinal cord to wait until the process has become stationary. If at the end of four to five weeks this does not occur, the operation of laminectomy is indicated. Contraindications to the operation of laminectomy are: Pulmonary and abdominal complications; severe suppurating processes in the neighborhood of the field of operation, including progressing suppurative bedsores, suppurative cystitis, and ascending pyelitis. Mild infections of the urinary tract and granulating bedsores do not constitute a contraindication to operation. The number of direct and tangential wounds of the spinal cord caused by gunshot is very small compared to those caused indirectly.

Fever Reactions Induced by Filterable Virus, by H. Fischer.—A fever curve has been noticed after injecting the contents of the blebs found in foot and mouth disease into guineapigs. The temperature of guineapigs not injected was taken as a control and no fever was observed. When vaccine obtained from calves was used, the same results were obtained. The vaccine was made germ-free by the addition of ether, and after injecting it into the peritoneal cavities of guineapigs, temperatures of over 40° C. were noted, the controls showing temperatures under 40° in all cases. Injections of rabies virus also gave fever reactions. When the virus of chicken cholera was injected into guineapigs and rabbits, animals that are not susceptible to this infection, a rise of temperature was, nevertheless, observed.

Frostbites, by Richard Volk and George Stieffer.—The feet are most commonly affected, because here the circulation is poor; the feet are the most difficult part of the body to keep dry. Of the forty-seven cases observed, nineteen were mild, showing blebs or some slight involvement of the uppermost layers of the skin; thirteen were moderately severe cases involving the deeper structures and extending for quite a distance into the surrounding tissue, and fifteen were very severe cases in which the muscles and tendons and, at times, the bones were involved. In most cases the feet alone were affected; in some, the fingers and feet and in others the fingers alone. In the mildest cases the skin is dry, thrown into folds, livid, and blebs may be present. Pain is usually experienced. In making a prognosis in these cases one must use care as some patients ultimately show necrosis. In the severest cases the process usually continues and necrosis and mummification follow. Phlegmons oc-

cur as the result of infection of these necrotic areas. Constitutional symptoms are absent in the milder cases, but the severe cases show fever and may appear septic. The line of demarcation is not always linear, it being tongue shaped at times. The intensity of the subjective symptoms is not always in proportion to the degree of the frostbite. In the mildest cases, the patients may complain of very severe pain and parasthesia. In the mild cases the prognosis is usually good, although this depends on the disturbance the nerves suffer and the duration of this disturbance. Prophylactically the kind of shoes worn is of importance. The laced shoes with leather tongues predispose to frostbites, while half boots which reach midway between the ankle and knee give better protection.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

January 5, 1915.

Operative Indications in Wounds of the Eye, by F. de Lapersonne.—Preservation of the eyeball proved possible only in forty-one per cent. of the author's cases. Transverse wounds of the orbit have proved especially dangerous. As regards the treatment of such cases, De Lapersonne points out the importance of allowing men wounded in the eye to sleep as soon as the wound has been cleansed, proper rest and a favorable general condition being essential in these cases. Hydrogen dioxide solution, diluted to one in four, is recommended for the cleansing of wounds, with the exception that in the conjunctival sacs and in the case of the eyeball itself a solution of fourteen grams of sodium chloride in 1,000 c. c. of water should be used. Frequently renewed compresses of one in 2,000 potassium permanganate are very useful at first, but should be replaced by dry dressings as soon as the dead tissues have become detached. Applications of tincture of iodine should be made every two or three days over infected areas covered with grayish membrane. Early suturing of injured tissues is to be avoided, except in the case of large, loose flaps. In traumatic cataract, considerable caution is required, as a too hasty operation may induce plastic iridocyclitis. Prompt intervention is indicated where there is a glaucomatous hypertension in the eye, with sharp circumorbital pains; prompt aspiration of the cataract is then indicated.

PRESSE MÉDICALE.

January 7, 1915.

Early Diagnosis of Typhoid Fever, by A. Ortiçoni and P. Amenille.—Stress is laid on the necessity of securing an early positive diagnosis of typhoid fever in the first line hospitals of an army in active service, in order that special prophylactic measures may be promptly instituted and that the numerous patients with mild, evanescent disturbance simulating typhoid fever at the outset need not be withdrawn from the line of active operations. The required laboratory facilities have now been provided for at the front in the French army, and in all suspicious cases the serum reaction is carried out, which supplies a definite answer within two hours after the arrival of the patient at the ambulance. In addition, blood cultures are made in cases that have lasted less than eight or ten days. The use of a slightly

alkaline bouillon has seemed to accelerate the growth of the culture, where positive, so that even where less than ten c. c. of blood has been collected, a definite result is sometimes obtained in twelve to eighteen hours. On the whole, a definite laboratory diagnosis was rendered possible, in the authors' cases, in thirty-six hours at the most, and only rarely did the laboratory and clinical diagnoses disagree. Progressive elevation of temperature, headache, epistaxis, and slight bronchitis were the clinical signs of chief importance. The bronchitis was observed very early and almost constantly. The impression was gained that at the front up to the beginning of December, 1914, all instances of bronchitis accompanied by fever were cases of typhoid fever.

RIFORMA MEDICA.

January 23, 1915.

Atypical Chronic Malaria, by M. Ascoli.—Not all cases seen in practice are of the classical category with a simple diagnosis. An atypical case described in detail was that of a man aged forty-eight years who came under observation with a puzzling condition. He gave a history of an attack of malaria twenty-one years before with complete recovery after three months, and perfect health since that time until four months before consulting Ascoli. Examination showed anorexia, weakness, headache, pallor, and emaciation. The urine was normal, and the Bruce, Widal, and Wassermann reactions were negative. The temperature was normal, there was no splenic enlargement and the blood examination showed a red count of 1,550,000 with a white count of 7,600. Only after repeated blood examinations was the diagnosis cleared up by the discovery of small intracellular estivoautumnal malarial parasites. The case is interesting as showing that malarial infection may remain latent as in this case for over twenty years, and that blood cell destruction may go on without either fever or splenic enlargement.

Treatment of Nocturnal Enuresis by Method of Albarán and Cathelin, by E. Pellechia.—This method was introduced in 1901 and consists of epidural injections of solutions of cocaine or novocaine. The Sims position is preferred for the injections, although the Trendelenburg or the knee chest posture may be used, and the site of injection is in the sacral region. Of nineteen cases treated in this way by Pellechia, all were completely cured. The conclusion arrived at is that this method is the best so far employed for enuresis; that the injections are best made with ten c. c. of a 2 per cent. solution of novocaine given every eight days; and that if the desired result is not obtained by four or five injections, it is useless to persist.

Thorium X Therapy and Its Dangers, by F. Salvatore.—Elimination of thorium x is effected by the kidneys and the alimentary canal. Gastric and intestinal hemorrhage after even moderate doses was noted by the writer. These hemorrhages were so severe in several instances as to endanger the patient's life. In the cases described, all precautions were taken as to surveillance of the patient in the hospital, and the injections were painless. There was no evidence of toxic action, as headache, sweating, tremor, malaise, or febrile reaction.

REVISTA DE MEDICINA Y CIRUGIA PRACTICAS.

February 2, 1915.

Phenolsulphonephthalein Test of Renal Function, by B. Cifuentes and M. Escobar.—An account is given of this the first experimental work done along these lines in Spain. This drug is more rapidly and more completely eliminated than any other one known to science, as it appears in the urine in from six to eleven minutes, whereas methylene blue takes from thirty to forty-five minutes. This rapidity of elimination is of great advantage as it lessens the time of retention of the ureteral catheter. The amount of urine secreted does not affect elimination which depends entirely on the functional power of the kidney. When it is given hypodermically or intramuscularly, the effect is equally rapid, and its toxicity is less than that of sodium chloride. Errors to be excluded arise from the presence of urinary or biliary pigments, which substances may be excluded by precipitation with lead subacetate without interfering with the test; and also from the presence of blood which may be removed by boiling and filtration. In acute nephritis the test is an accurate guide to prognosis, as it is in direct proportion to the amount of the drug eliminated. The exaggerated permeability sometimes found when methylene blue is employed, is not seen here. In chronic nephritis this method is of great service in estimating the gravity, the extent and the duration of the disease.

Hydatid Cyst of the Lung, by Blanc y Fortacin.—The case reported was one of four years' standing, in a woman of middle age, where continuous pain in the right side led to paracentesis and the discovery of the hydatid nature of the condition. While under observation a febrile attack developed, with vomiting of three litres of turbid fluid containing particles of membrane. After this the patient improved as to pain and temperature, but abundant fetid expectoration persisted. A diagnosis was then made of lung abscess following hydatid cyst, and operation was advised. An extensive thoracotomy was done, with resection of six ribs, and an incision was made into the lung tissue, revealing a cavity the size of a full term fetus's head. Recovery followed with the persistence of a slight fistulous opening. The lesson taught is the danger of awaiting or allowing spontaneous evacuation of hydatid cysts of the lung, and the problem remaining is that of closing the fistulous tract. Two methods of closure considered in this case were compression by paraffin or by fatty tissue from the patient herself. So far her condition did not justify either.

BRITISH MEDICAL JOURNAL.

February 13, 1915.

Treatment of Cerebrospinal Meningitis by Antimeningococcus Serum and Autogenous Vaccine, by J. Rupert Collins.—A case is reported in which the patient, a boy nine years old, was treated with both of these agents, though ultimately unsuccessfully. The intradural injection of the antimeningococcus serum seemed to make the condition worse rather than better, but was followed by recovery in each instance. An autogenous vaccine was prepared from the organisms grown from the spinal fluid obtained at the first puncture and this

was injected subcutaneously in a dose of half a million organisms on the fifth day of the disease. The injection was followed by very striking improvement in all of the symptoms, including a return to consciousness. A second dose was given three days later and one day after an injection of the serum. This dose was also followed by marked betterment in all his symptoms, but less than twenty-four hours later he began to grow worse and died in a few hours. Although the treatment did not suffice to save the patient's life, the beneficial effects of the vaccine were very marked, while the use of the antiserum was always followed by an increase in the symptoms.

LANCET.

February 13, 1915.

Puerperal Eclampsia, by C. E. Purslow.—The disease should be recognized if possible in the pre-eclamptic state, when there is nothing but albuminuria, persistent headache, or edema. At this time prophylactic measures should be undertaken; the patient should be confined to bed, water alone should be given for the first forty-eight hours, then the diet should be limited to diluted milk until the function of the kidneys has shown distinct improvement. Free purgation should be induced in every case. Saline may be given by rectum or by hypodermoclysis. If this does not avail, or if the patient is first seen after the fits have developed, she should be confined to a dark room and all causes of irritation sedulously avoided. Water may be given by mouth, but no food of any sort, and purgation should be induced promptly by the use of croton oil. After purgation a slow rectal injection of four ounces of water containing two ounces of magnesium sulphate may be given following a copious enema of suds. Gastric lavage is also advisable. Subcutaneous or intravenous injections of normal salt solution should be administered. Chloroform should not be used to control convulsions, but an attendant should be constantly with the patient to prevent her injuring herself. Morphine has not given good results in the hands of the author, and he regards the use of pilocarpine as distinctly dangerous. The obstetrical treatment should be the last problem, and every effort should be made, even in the most severe cases, to avoid having to interrupt pregnancy. If this has to be done, the author feels that the only methods to be recommended are those which terminate labor quickly, such as Cæsarean section, instrumental cervical dilatation with version or forceps, cervical incision, or the so called cervical Cæsarean section.

Experimental Purpura, by J. C. G. Ledingham and S. P. Bedson.—Supplementing the report made by these authors about eight months ago, they recount further experiments which seem to show that purpura in the guineapig, rat, and rabbit can be induced only by the injection of a serum made by the injection of the blood platelets of the animal into another animal of the same species. The role of the platelets is further confirmed by the observation in guineapigs and rabbits that the purpura induced is associated with a great reduction in the number of the platelets in the circulating blood of the injected animal. The use of heterologous antiplate serum does not cause purpura; that is, antirabbit plate

serum fails to induce purpura in the guineapig, and vice versa. The antiplate serum not only produces purpura but is quite markedly lytic for the red cells causing hemoglobinuria. Serums obtained from immunization with leucocytes or red cells fail to cause purpura.

Pseudolevulose of Diabetic and Other Urines, by P. J. Cammidge and H. A. H. Howard.—The points of similarity in reactions between the levulose of the urine and the plant product are set forth, as are also the points in which they differ. The work of Borchardt is cited, in which he showed that the levorotatory substance did not behave toward a precipitant as did plant levulose, and on the strength of this and the other observations the authors sought to determine the nature of this substance in the urine. By isolation and chemical study of its composition, as well as by its physical properties, they find that it is not a sugar, but is isoglucuronic acid. Thirty cases of so called levulosuria and fifty of diabetes were subjected to analysis in this study. On the strength of this they have searched the literature and could find only one recorded case in which true levulose was found in the human urine.

Typhoid and Paratyphoid Infection in Relation to Antityphoid Inoculation, by Georges Dreyer, E. W. Ainley Walker, and Alex. G. Gibson.—Several cases of fever resembling typhoid clinically have been encountered in persons previously inoculated against typhoid, or in persons in whom the serum agglutination has been found positive for both typhoid and one of the paratyphoid organisms. The question of the diagnosis of the nature of the illness in such cases is important. It can be solved by plotting the results of several agglutination tests made on several days. These tests should all be made against standard, killed cultures of typhoid and paratyphoid A and B bacilli. It has been found from such tests that the infecting organism is that which yields the highest agglutination titre. If the agglutination of a second organism is due to the presence of coagulins, the curves of the agglutination titres for the two organisms will run parallel but at different levels. If there is mixed infection the curves of the titres of the two organisms will not be parallel, and the same is true of a paratyphoid infection in a person inoculated against typhoid. By these observations the authors have found no case of typhoid fever in inoculated persons. The frequency with which paratyphoid infection has been encountered makes them urge immunization against this disease. This can be accomplished by the use of vaccines containing equal numbers of the three bacilli—Typhosus and Paratyphosus A and B—and such a procedure does not materially increase the symptoms of inoculation.

BRITISH JOURNAL OF DERMATOLOGY.

November, 1914.

Sarcoma of the Skin, by J. H. Sequeira and Hubert M. Turnbull.—The case was in a man aged forty-one years, who in June, 1914, noticed a redness and swelling of the skin of the forehead followed by a lump. The symptoms increased and a number of lumps resembling a bunch of grapes were noticed. The lumps were soft, and on puncture, exuded a mucoid material. There was glandular enlargement. Pathological diagnosis was chon-

drosarcoma. He was treated by massive doses of x ray without avail.

December, 1915.

Acne agminata (Crocker), by W. Jenkins Oliver.—The author reports a case in a man who suddenly developed small red nodules on his face and forehead which persisted. The lesions were bright red, small, firm, dry, and had rather adherent crusts. There were some lesions suggestive of comedones and some of pustules. There was no scarring. The sections suggested a tuberculous process, although all the laboratory evidence was against such conclusions. The author believes that this and similar cases belong to a group of infectious granulomata of as yet undetermined origin.

January, 1915.

Acne urticata, by H. G. Adamson.—The author describes three forms. First, neurotic excoriations or feigned eruptions occurring among nervous, hysterical women. The eruptions may be produced by acids, alkalis or finger nails, occurring upon parts most easily reached and done usually to excite sympathy. Second, acne urticata of Kaposi, a generalized eruption consisting of pale red, wheal-like elevations, about the size of a bean. They last from a few hours to a few days. Then on account of the great itching, the patient scratches them with the finger nails, a pin, or a penknife, and squeezes them, so that the blood and serum leave the swollen papillae. Finally, there remain scars in streaks at site of the eruption. Third, *l'acné excoriée* (Brocq) seen in girls and women who suffer from acne vulgaris. They tear the skin to produce real or supposed acne spots or in their endeavor to relieve an itching spot.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

February 20, 1915.

The Comparative Nutritive Value of Codliver Oil and Codliver Oil Cordials, by J. P. Street.—In the past, codliver oil has been considered a food, rather than a medicine; its value is attributed to the easily digestible and metabolizable oil it contains. This, however, has been disputed. By some its therapeutic value has been attributed to the small amount of iodine in it, and more recently the suggestion has been made that its special potency depends on its peculiar fatty acids. With a view to ascertaining the relative nutritive value of the oil itself and certain codliver oil cordials now on the market, experimental investigations were undertaken. Some of the commercial products are alleged to represent the oil and to retain all its virtues, others are said to contain oil, and still others all the valuable constituents of the oil without the oil itself. The experiments were made upon albino rats of both sexes, which were placed, when about six weeks old, on a standard ration and, after several months, when a failure to maintain weight was observed, an amount of dealcoholized cordial extract equivalent to eighteen per cent. of codliver oil was substituted for a portion of the lard in the ration; while later the cordial extract was replaced by an equivalent amount of codliver oil. The results obtained were such that not only did codliver oil show a marked superiority as a source of nutriment over the four preparations experimented with, but it also showed a remarkable reconstructive and recupera-

tive power in its ability to enable rats to gain weight rapidly after having suffered from a deficiency in nutriment when fed these preparations.

Symptoms and Signs of Gastric Cancer, by Frank Smithies.—There is no proved clinical procedure other than history taking which enables one to make an early diagnosis of this condition. So called early diagnoses are usually lucky guesses, or are incidents in gastric exploration. The only dependable early diagnosis is made, after laparotomy, by a capable surgical pathologist by means of sections of tissue examined under high power. Information obtained by the x ray, by estimation of the formal index, by the Wolff-Jungmans test, or by the edestin digestion test is sometimes of assistance in excluding cancer in its early stage; but is of relatively little value in determining the presence of the earliest type of cancer—the cancer which can honestly be said to be surgically curable. In proved cancer cases there are clinically at least three types of happenings leading up to a diagnosis of cancer, and the present study indicates that the following is the order of their relative incidence: 1. A symptom complex of two very definite and different stages—gastric disturbance, nonmalignant and generally chronic; gastric malfunction of malignant type. 2. A symptom complex generally of a distinctly apparent, pernicious nature. 3. A group of cases in which there is usually evidence of years of gastric disturbance of irregular form, clinically, on which is superimposed a type of affection easily recognized as malignant. There is at present no known medical cure for gastric cancer, and as yet we have no dependable means for the recognition of the disease at a stage when we can state positively that it is surgically curable. The cases diagnosed early are those in which the clinical symptomatology is that which we associate with chronic gastric ulcer, and in which laparotomy has been urged on the suspicion that cancer might be present. Since microscopists disagree regarding the diagnosis of sections of extirpated tissue, clinicians can hardly be expected to make an early diagnosis of cancer before laparotomy. The question for clinicians and pathologists to settle is just how one is to tell, clinically, in a given case of chronic gastric ulcer, what future course it is destined to pursue; at present we have no means of prognosticating the future course of any gastric ulcer, acute or chronic.

Some Observations on the Nervous and Mental Symptoms of Heart Disease, by J. I. France.—There are many cases of heart disorder which may long remain undiscovered because of the failure of the medical attendant properly to study the nervous symptoms of his patient. A defective heart valve which produces cardiac muscle strain and irregularity is sufficient to create a distinct emotional state of depression, anxiety, and fear, independently of any worry about the disease. The first mental symptoms of cardiac disease occur when the inhibitions of the higher centres are relaxing in the hypnagogic or in the sleeping state, and night terrors and nightmares are no doubt often caused by an irregularity of the heart's action. The symptoms referable to the nervous system found in certain forms of heart disease are constant enough to be

of practical value to the physician. Thus, neuralgia of the fifth nerve, and scalp tenderness over the area of its distribution, are of such frequent occurrence as to be of some diagnostic and prognostic value. It is important to remember that many cases of such neuralgia, and also many of neurasthenia with anxiety, fear, and depression, especially in patients forty or fifty years old, may possibly be due to a nascent cardiac disorder not as yet sufficiently developed to be discoverable by physical signs.

MEDICAL RECORD.

February 20, 1915.

Tuberculin Therapy; Its Present Imperfections and Future Improvements, by F. M. Pottinger.—Tuberculin has been in use for nearly a quarter of a century; yet there are no definite, generally accepted ideas about it. This is partly due to misunderstanding of this agent and of what is to be expected of it, too much having been demanded; in order to understand the action of tubercle vaccines, their specific immunizing and specific stimulating properties must both be borne in mind. They are made up of many substances, such as proteins, fats, and toxins, which produce specific antibodies, and which, when administered in the proper proportions, produce, it is believed, more or less immunity against the tubercle bacillus; and many of these substances produce a specific stimulation of the foci of infection. While its most ardent supporters admit that tuberculin is far from a perfect remedy, if anyone will watch the clinical results of those who use it most successfully, he must see that sufficient unquestioned results have been obtained to show that it does have value in the healing of tuberculosis. The solution of the problems of immunization against, and the cure of tuberculosis in human beings, is the province of the clinician, and he must be careful not to be misled by depending wholly on the laboratory; the best results should be obtained by a union of forces between clinician and laboratory worker, both studying and working together. One important point which offers hope for the future is that we now know that vaccines contain many substances which help to build up a complete immunity, and, further, that different preparations contain these in varying quantity. It is the duty of the laboratory to produce and of the clinician to test these various constituents. Especially should the clinician observe more carefully than he has in the past; he has been overawed and overshadowed by the laboratory, and has thus failed to make the progress he should.

Perineorrhaphy, Puerperal Septicemia, and Pain, by J. M. Mabbott.—In immediate perineorrhaphy (usually within thirty-six hours) the sutures should include enough tissue on both sides of the wound to exert their greatest traction in the right direction, and hold the wound surfaces together in their natural relations. This requires a suitable needle, and extended experience has shown how difficult, or even impossible, it is to introduce deep perineal sutures properly with anything but a long, straight needle, slightly curved near the point. As to the use of vaccines in puerperal septicemia, the author, having stated that the profession has been pretty

thoroughly warned not to expect much benefit from vaccines except when of the autogenous variety, reports a case in which a marked success followed the employment of a stock vaccine. He therefore recommends the use of such a vaccine in urgent cases; at least until an autogenous vaccine can be prepared. The concluding portion of the paper is devoted to the need of better judgment in the infliction of pain and better facilities for its relief in medical, surgical, and obstetrical practice. He cites three cases, one in each of these divisions of practice, in all of which there was extreme suffering, and goes on to say that there are doubtless many cases of minor surgery and obstetrics, as well as painful ailments, for which present methods of treatment are fairly or entirely satisfactory; but for severer instances of suffering, always bearing in mind the importance of safety first and the baneful immediate or later results of some of our remedies, we are bound to acknowledge the need of better facilities for the avoidance and relief of pain. We should demand and employ the best facilities at present available, and the equipment of dispensaries with apparatus for the administration of nitrous oxide or gas-oxygen anesthesia is a very important improvement.

A Tube for Use in Phlebotomy, by W. Spielberg.—A cylindrical tube, with a diameter of about two inches and a capacity of 500 c. c., is graduated into ten centimetre divisions. The lower end is drawn out into a tube of a diameter of about one quarter of an inch, which is bent at right angles about one inch from the bottom of the cylinder; and the end of this narrow tube is drawn out to a point about one sixteenth of an inch in diameter. About one inch from the upper end of the vessel (into which fits a rubber stopper) is an outlet one inch long and one quarter of an inch in diameter, the purpose of which is to provide for suction, if necessary, to facilitate the blood flow. Leakage of blood when the apparatus is removed from the vein may be prevented by holding the thumb over the opening of the outlet. The advantages claimed are: 1. Accurate measurement of quantity of blood drawn; 2, saving of time in withdrawing the blood; 3, neatness and cleanliness of technic; 4, applicability in private practice, since no assistance is required; 5, the good effect of the method (compared with others) on patient, nurses, and by-standers.

AMERICAN JOURNAL OF ORTHOPEDIC SURGERY

January, 1915.

Nearthrosis or Arthroplasty, with Notes of Some Cases, by A. H. Tubby.—The author believes from his experience that in certain selected cases arthroplasty is worthy of trial, and justifiable. Points to be considered, before operating, are: Age, mental state, and general condition of the patient; condition of the parts involved and its surrounding tissues; possible latent activity of the exciting cause; and the x ray picture. He prefers, as the transplant, a flap of muscular or fascial and fatty tissue; and, if these are unobtainable, he uses chemicized cargin membrane or pig's bladder. He lays stress on the following: Preservation or reproduction of the articulating parts; sufficient por-

tion of bone removed; careful suturing of the transplanted tissues; and adequate drainage; and that no passive movements be given for at least four weeks.

Supernumerary Bones of the Foot: A Röntgen Study of the Feet of One Hundred Normal Individuals, by Emil S. Geist.—In this study (ages between ten and sixty-five years being represented), there were thirty cases in which accessory bones were demonstrable, and they were found about as frequently unilateral as bilateral. The findings confirm those of Dwight and Pfizner.

Use of Silk Ligaments at the Ankle in Infantile Paralysis, by Robert W. Lovett.—The author favors this method in preference to arthrodesis as dorsal flexion is permitted. Of the sixty-seven known results, seventy-nine cases operated in by six surgeons, fifty-eight per cent. were partly or entirely, successful. Three methods of procedure were used: Periosteal insertion, open, and subcutaneous bone methods. Preference is given to the open bone method.

Further Consideration of Arthrodesis in the Treatment of Lateral Deformity of the Foot, by Robert E. Soule.—The writer states that arthrodesis of the astragaloscaphoid joint is more efficient than other operative methods of correction. In his operation, he approaches the joint from above; and in denuding the cartilages of the joint endeavors to preserve the normal curves and angles of the articulating surfaces.

Mechanical and Operative Treatment of Anterior Poliomyelitis, by P. William Nathan.—The author contends that it is the action of gravity which produces flexion in a case of paralysis of the extensors and that the resulting contraction of the flexors is due to the accommodation of these muscles to their shortened field of action owing to the continuous position of more or less flexion. In operating, these mechanical principles should be held in mind, as the transferred part must at least equal the force to be overcome, and the course and insertion of same should be planned to obtain the greatest leverage possible.

A Case of Subacromial Bursitis with the Production of Lime in the Bursa, by Leonard W. Ely.—Report of one case in which the contents of the bursa consisted of a staphylococcus growth; the chemical analysis showing lime deposits; and the walls of which contained some calcareous material.

Air Embolus as a Cause for Sudden Death in the Subcutaneous Tenotomy for the Relief of Congenital Wry Neck, by Walter G. Stern.—The writer holds that the open method of operation should be used; that care should be taken in the region of the bulbus jugularis; and that sudden death should never occur.

Case of Rheumatic Arthritis Treated by the Extract of Pituitary Body, by Brainard H. Whitbeck.—The presentation of thirteen unclassified cases of rheumatic arthritis treated by the daily intramuscular injection of a one per cent. solution of pituitary extract; only two failed to improve. Relief of pain, joint fluid absorption, and increased activity were noted rather early in the treatment.

Other interesting facts following the foregoing were the general improvement of health of the patient and the equalization of the pulse and blood pressure.

Injection Treatment of Infected Joints, by Sydney M. Cone.—The author gives a brief résumé of the use of various injecting fluids in infected joints and then cites his technic and results in the use of five per cent. carbolic acid (pure, when adhesions are desired), followed by alcohol. The best results were noted in the joints infected by the gonococcus, staphylococcus, streptococcus and tubercle bacillus. He has had no untoward effects.

AMERICAN JOURNAL OF TROPICAL DISEASES AND PREVENTIVE MEDICINE

January, 1915

Occurrence of Yaws in the United States, by Edward J. Wood.—A case of yaws is reported in a white child born in North Carolina of parents who had always lived in that State; the child had at no time been in contact with any one from the West Indies or other section where yaws is prevalent. Later, all the other children in the house, as well as the mother, had the disease in a milder form. Upon further investigation of the disease, Wood was led to suspect that yaws has been overlooked in this country and that among negroes the disease occurs frequently in the South and has been mistaken for syphilis. He protests against the customary division of the symptoms of yaws into primary, secondary, and tertiary stages, pointing out that there is a certain indefiniteness about the periods in yaws which is quite different from the rule in syphilis. The initial lesion, which usually develops in two to four weeks after inoculation and is generally extragenital, is not indurated and often persists for months, even after the development of the lesions of the second period, which may take place from one to three months after the appearance of the initial lesion. The constitutional symptoms are much less definite than in syphilis. The characteristic raspberry-like granulomata occur chiefly on the limbs, about the face and arms, and over the chest. The so called tertiary lesions of yaws—clear cut ulcers with serpiginous outlines—may be delayed for many years. Yaws is not inherited, but rather contracted by the mother from the child. The chief clinical points of difference from syphilis are—it is essentially an affection of childhood and it is much more readily communicated than syphilis. The prognosis as to life is not grave, but the condition incapacitates the individual for manual labor, and salvarsan treatment is indicated.

Observations on Tropical Infectious Diseases, by Richard P. Strong.—An account of investigations made in a recent special expedition to Jamaica, the Canal Zone, and South America, is given. Among the conditions discussed is the "vomiting sickness" of Jamaica, the etiology of which is still obscure. A particular study was made of the febrile affections of Peru, which led to the conclusion that *Verruga peruviana*, a very prevalent disease characterized by fever, anemia, and a nodular skin eruption, and the condition known as Oroya fever, hitherto considered an initial stage of *Verruga peruviana*, are two distinct disorders.

Verruga was found to be due to a virus, which can be transmitted to animals, especially the monkey, and produces definite lesions in them. Monkeys were successfully immunized against verruga virus—a result foreshadowing a satisfactory method of vaccination against this disease in man. Histological study of the verruga lesions proved the disease to be distinct from Oroya fever. In the latter, there are no skin lesions in uncomplicated cases. The disease was found to be due to a new parasite, occurring both in round and rod forms, in the red corpuscles; to this parasite the authors have given the name *Bartonella bacilliformis*. The ulcerative disease uta, known in Peru since prehistoric times, was also investigated, and found to be due to a Leishmaniasis.

ANNALS OF SURGERY.

January, 1915.

Cerebral Surgery, by J. H. Kenyon.—Of all the various methods of cerebral localization the writer says that of Chipault has proved to be the most satisfactory, as it is based upon a percentage of a measured distance on the scalp and, therefore, is equally accurate for all ages and races. Chipault method: The distance from the nasion to theinion along the median line is measured in centimetres. This median line is marked on the scalp and on it are indicated points, forty-five per cent., fifty-five per cent., seventy per cent., eighty per cent., ninety-five per cent., of the measured distance from nasion toinion, always beginning at the nasion. The retroorbital tubercle on the frontal process of the malar bone is located and a line drawn from it to the seventy per cent. point. This line lies over the Sylvian fissure, is measured and divided into tenths. The junction of the second and third tenth on this line is joined to the forty-five per cent. point, and is the precentral line. The junction of the third and fourth tenth is joined to the fifty-five per cent. point and is the Rolandic line. The retroorbital tubercle is now joined by a line to the eighty per cent. point which constitutes the temperosphenoidal line. Another line is drawn from the retroorbital tubercle to the ninety-five per cent. point which, in its posterior two thirds, overlies the lateral sinus. The writer states that head injuries with symptoms of internal hemorrhage which can be localized or give only the general signs of increased intracranial pressure, embarrassed heart or respiration, or increasing stupor, should be operated upon and in the absence of localizing signs and when the condition does not warrant waiting, a small incision and a small trephine opening over the temporal fossa or occipital lobe or over the cerebellum, with an inspection of and a small incision in the dura if necessary, can be quickly made and quickly closed with a few sutures if nothing is found. This procedure is done at each of the regions mentioned, first on one side and then on the other if necessary. If the opening gives evidence of hemorrhage or lacerated brain, it may be used as one corner of an osteoplastic flap plan to expose this region. The dural flap is then made and the clot removed. The bleeding is checked and the portion of bone is removed if there is lacerated brain or increased pressure. Rubber tissue drains are then inserted under the dura, and the dura sutured over

them if possible. The wound is then closed in the usual manner.

ARCHIVES OF INTERNAL MEDICINE

January, 1915.

Effect of Intravenous and Intraspinal Treatments on Cerebrospinal Syphilis, by George Draper.—The technic and method described by Swift and Ellis were applied in twenty-five cases. Intravenously most of the patients were treated at weekly intervals with doses of salvarsan varying from 0.3 to 0.6 gram, or with neosalvarsan in full doses. Intraspinally most of the cases received thirty c. c. of fifty per cent., or twenty to twenty-five c. c. of full strength, serum, separated from blood withdrawn forty minutes after the intravenous dose of salvarsan. Several patients were bled before the intravenous dose; salvarsan, up to one mg., was added to the serum to be injected intraspinally. The combined treatment was found to cause a marked improvement in the clinical symptoms and the spinal fluid. Pain, ataxia, bulbar symptoms, and psychical disturbances were all usually improved or removed, though in some cases, especially in those treated with serum salvarsanized *in vitro*, transient numbness in the feet appeared. The author warns against a premature cessation of the treatment in the cases which have done well under it.

Relation of Pellagra to Race, Age, Sex, and Occupation, by J. F. Siler, P. E. Garrison, W. J. MacNeal.—The disease was found about three times more prevalent in the white than in the negro population of Spartanburg county, South Carolina. Women between the ages of twenty and forty-four years were the most subject to the disease, children under two years, adolescents of both sexes and men under fifty years were relatively free from it. No direct relation of occupation to pellagra morbidity was discovered.

Mental and Nervous Disorders Associated with Pellagra, by H. Douglas Singer.—A study was made of 130 cases of pellagra; of these fifty-two, or forty per cent., showed mental disturbances. Children were observed to be practically exempt from such disorders, which occurred most commonly in men between the ages of twenty-one and forty, and in women between forty-one and sixty-one years. About ninety-five per cent. of the mental disturbances are stated to have been direct results of the pellagrous intoxication. Although the mortality in such cases was much higher than in cases free from mental disorder, the disorder was observed to pass off completely if the patient survived. Chronic insanity due strictly to pellagrous intoxication is held by Singer to be rare.

Relation of Streptococcus viridans to Infections of the Upper Respiratory Tract, by Russell L. Cecil.—Infections of the upper respiratory tract with the organism mentioned were characterized by a mild course and tendency to chronicity and frequent recurrences. This organism was the predominant one in fifty out of eighty-nine cases of upper respiratory infection. Infections of the tonsils, sinuses, and alveolar sockets were observed to be often associated with endocarditis and arthritis. Autogenous streptococcus viridans vaccines were found of considerable value in cases in which structural changes were not too advanced.

ARCHIVES OF OPHTHALMOLOGY.

January, 1915.

One Hundred Successive Extractions of Cataract in the Capsule after Subluxation with the Capsule Forceps, by Arnold Knapp.—The operation is described as follows: After the usual preparation and instillation of one drop of atropine, under holocaine anesthesia, the Koster speculum is introduced and left in place until the operation is completed, unless there is danger, or an actual prolapse of vitreous. An assistant is necessary only in presence of complications. The section must be large. After iridectomy the capsule forceps is introduced to a point below the centre of the pupil and a knuckle of capsule is grasped not tightly, so as to tear it, but sufficiently firmly to exert traction on its periphery. The branches of the forceps are then moved, gently from side to side, up and down, and rotated until the lens is dislocated, when the forceps are opened and withdrawn. Pressure is then made straight back on the lower part of the cornea with Smith's hook, and the cataract is delivered as in Smith's operation. The iris columns are then carefully replaced. This the writer thinks is a legitimate and conservative development of our operative treatment of cataract, that insures for many patients the advantages of an extraction in capsule without subjecting them to a greater risk than is involved in the ordinary operation.

Purulent Meningitis Following Penetration of an Eyeball with a Fishhook, by Clarence A. Veasey.—A man sixty-six years old, while fishing, was wounded in his left eye by a fishhook, where it remained for seven hours. The hook was then cut out and enucleation advised but declined. Thirty-three hours after the accident, the wound was found open, ragged, and the iris covered by a thin layer of pus. Enucleation was performed fifty-seven hours after the accident, but symptoms of purulent meningitis set in the next day and death occurred three days later.

Exenteration versus Enucleation, by Harry S. Gradle.—There are no absolute indications as to when to enucleate, or to eviscerate an offending eyeball, but evisceration may be performed in all cases except those of malignant growth and phthisis bulbi, provided that care is taken that no choroidal remnants remain adherent to the scleral capsule. On the other hand, enucleation may be performed in all cases with the possible exception of a very virulent panophthalmitis. From an economic standpoint, enucleation is to be preferred, but from a cosmetic standpoint, evisceration is better.

ARCHIVES OF THE RONTGEN RAY.

January, 1915.

Diagnosis of Duodenal Ulcer, by Alfred E. Barclay.—Duodenal ulcers that consist of merely an erosion of the mucous membrane have no effect on the bismuth although they may give rise to severe hemorrhage and be very dangerous. The chances of perforation are also greater when cicatrization has not taken place. These ulcers are of considerable importance surgically. Duodenal ulcer may form when duodenal irritation is present. It depends to a great extent on the condition of the mu-

cous membrane. If the irritation is marked there is more likelihood of ulcer. Duodenal ulcers tend to heal and recur and the effects of ulceration are really seen by the x ray, not the ulcer itself. This gives no guide as to the necessity for operation. Duodenal irritation is probably a secondary manifestation and although posterior gastroenterostomy helps a great many cases, if the cause of the duodenal irritation could be removed, fewer cases would need to be operated in.

X Ray Filters, by J. H. Sequeira.—Observations were made to verify the law of inverse squares as control of the value of the tintometer; to determine the influence of the position of the screen; to determine the ratio between the tint produced on a pastille on the anode side of the screen and one immediately on the distal side of the screen. Sabouraud's pastilles were used and the tints verified by Corbett's tintometer. These observations were made at standard distances, 7.5 cm. from the anode, the usual position of the pastille in treatment, and fifteen cm. from the anode, the usual distance of the area under treatment. The practical conclusions drawn from these observations are: The chemical change produced in the Sabouraud pastille gives no adequate evidence of the physiological effects of these rays; the anode of the x ray tube gives off a spectrum of radiations having different physiological effects; by interposing aluminum screens, the rays which cause erythema may be filtered off and there is a possibility of graduating the effects of the rays according to the depth to which we wish to apply them.

Diathermia in Medicine and Surgery, by E. P. Cumberbatch.—If applied to small areas of tissue for only a few seconds, anesthesia is not required. If the treatment is to be applied to parts not easily accessible such as the larynx and nasopharynx, general anesthesia must be employed. There is danger of ether explosion if ether is used as a general anesthetic when diathermia is applied to the trachea or pharynx. The skin surrounding the area to be destroyed should be painted with tincture of iodine and the tip of the instrument sterilized. Small end pieces such as the single needle should be employed when no anesthetic is given. The current should not be turned on before the electrodes are in position. It should begin at zero and should be increased until the tissue in contact with the electrode whitens from coagulation. When the tissue fluids in the coagulum begin to boil it should be turned off. When used on inoperable malignant growths, a coagulation of the malignant tissue is brought about locally. Shock has not been observed after its use. There is a slight rise of temperature the day following the operation, usually between 99° and 100° F., but pain is seldom complained of. At times the severe pain which is present in these cases has disappeared after diathermia has been employed.

OPHTHALMOLOGY.

January, 1915.

Delayed Healing of the Wound in Cataract Extraction and Its Proper Treatment, by Derrick T. Vail.—The explanations given in the text books why the wound sometimes fails to heal after a cataract extraction do not seem to the writer to cover

the ground. He believes that the forces at work to delay healing are: 1. Absolute minus tension, due to the nature of the operation and possibly local shock following it. 2. A recumbent position, permitting the weight of the lids to fall on the collapsed cornea. 3. Involuntary winking, and twitching movements. 4. Contraction of the orbicularis. 5. Too frequent and meddlesome inspection. The operation he advises in such cases appears to be Agnew's cantholysis, and was of excellent effect in the three cases reported.

PAN-AMERICAN SURGICAL AND MEDICAL JOURNAL.

January, 1915.

Large Doses of Antitoxin in the Treatment of Diphtheria, by John Gazzo.—A case is reported in which the author gave single doses of 50,000 units of antitoxin daily for six days, then 30,000 units a day for four days, and a final dose of 10,000 units. The patient was a girl four years old who was suffering from a very intense diphtheritic infection involving the larynx, pharynx, uvula, and tonsils, associated with grave toxemia. Recovery was prompt and complete, having begun after the second dose was given. No unfavorable symptoms were observed from these massive doses of antitoxin, and the author has since successfully treated several cases, giving 200,000 units in all to each patient. He suggests that there is less danger of producing serum sickness and other anaphylactic phenomena when these large doses are used; large doses lead to more permanent immunity than do smaller ones.

Biliary Infections, by Thomas E. Regan.—Mild grades of infection of the bile passages or gallbladder frequently lead to many forms of serious disease. The author suggests that all biliary infections, like those of the appendix, should be subjected to operative surgical treatment with the drainage or removal of the gallbladder to prevent subsequent troubles.

SOUTHERN MEDICAL JOURNAL.

January, 1915.

Defective Metabolism and Its Results, by J. G. Palmer.—Science has at last come to study the origin of disease. While its causes are innumerable, they can really be reduced to three or four: Primary elementary dystrophies, disturbances of nutrition, diseased metabolism, and infection. While infection plays an important part in the production of disease, it is more often a subsequent factor rather than a primary cause. The healthy man is not readily infected by toxic or microbic agencies. As the result of observation, autointoxication appears to be the primary cause of all cases of rheumatism, Bright's disease, arteriosclerosis, apoplexy, cholangitis, pancreatitis, cardiac disease, many exanthemata, gastric ulcer, and even gastric cancer, as well as many other affections. The physical and mental impairment resulting from toxemia can and does bring about a degeneracy which is transmissible, and many children are the victims of such degeneracy. In the growing child, the food taken determines the future of the individual. No other work of the physician, demanding earnest thought, and no other labor he can perform for the public, will bring greater returns than to teach the individual the im-

portance of what to eat and drink and how to live in such a way as to protect himself against the organic failures to which man is constantly becoming an easy prey.

Some Observations Further Incriminating Sugar Cane Products as the Main Cause of Pellagra in the South, by R. Blosser.—All but three of 133 pellagrins questioned admitted having eaten sugar cane products very freely. Exclusion of all partially refined sugars and sugar cane syrups resulted in the cure of 121 out of 133 cases; of the remaining twelve, eight patients were improved and four died. No recurrences have occurred in any of the cases in which the diet was carried out as directed. The presence in sugar cane products of an actively poisonous substance was shown by a feeding experiment previously reported, in which a moderate amount of sugar cane syrup was fed to a dog in connection with a diet in other respects varied and well balanced. At the end of six months the animal was found to have pronounced organic changes in the liver, kidneys, and intestines, which are the organs chiefly affected in pellagra.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Annual Meeting, Held January 7, 1915.

The President, Dr. WILLIAM K. POLK, in the Chair.

Quadracentennial of Vesalius; Address of the President-elect.—Dr. WALTER B. JAMES, in looking around the room at the lineaments of those who had preceded him in office, wondered that he should attempt a work that they had fulfilled so well. He recalled the circumstances under which the Academy of Medicine was founded and said that the fact that the first meetings were held in the old Museum of Natural History argued well for the future; this setting had furnished a background that took in other interests than those that were purely medical, and furnished a broader viewpoint than the purely professional one. Doctor Chisholm, in discussing the question of specialism in medicine, had said that specialism involved self sacrifice. While the specialist was undoubtedly of greater value to the public than the old time general practitioner, it was questionable whether specialism was of advantage to the physician himself. The tendency of specialism to narrow the point of view had often been regretted, and on this account it was well that the early work of the academy should have been done in an environment that could not fail to direct attention to collateral branches of knowledge and thus counteract any tendency to narrowness. For the same reason it was eminently fitting today that they should occasionally give themselves to the contemplation of matters that were not strictly medical and surgical. It should be a help to turn back and dwell for a time on the work of the medical worthies of the past. It was appropriate that they should ask scientific men from other places to talk with them of an anatomist who had lived many years ago and whose services had been of incalculable value in the development of medical

science and to the world at large. It was highly appropriate that they should devote an evening to a study of the life of Vesalius, and in keeping with the occasion that their confrère, Doctor Welch, who had also done so much for the advancement of modern medicine, should give of his store of knowledge on this subject.

Vesalius and the Spirit of His Time.—Professor WILLIAM H. WELCH had not supposed until he saw the program that he was to make a formal address. They might view Vesalius from the standpoint of the period in which he lived; this was the period of the renaissance, the revival of learning, the reformation; and viewed in this setting the life of Vesalius would be a large theme, but this part of the subject had been so well presented by Dr. James J. Walsh in the *Century of Columbus* that it would be a waste of time for him to attempt it. Perhaps Doctor Walsh had been overenthusiastic, but he had presented an imposing array of knowledge. Vesalius lived in a time of great events, when the boundaries of human knowledge were being enlarged in every direction, particularly in medicine. It should be remembered that at this time the physician was the botanist, the zoologist, the alchemist as well; he was a student in all the sciences based on observation. It was Vesalius who placed anatomy on the solid basis of observation.

One might consider Vesalius in the light of his Teutonic origin and its influences, or from the standpoint of his life in the university. It was of melancholy significance that the University of Louvain at Brussels, where Vesalius had received his early training, had been planning a great quadricentennial celebration in honor of Vesalius this winter, when because of the European war it had suffered ruin and its professors had been scattered. At the age of fifteen years, Vesalius entered the University of Louvain, where he studied anatomy for three years. He then went to the University of Paris, where he studied under Jacobus Sylvius. One might enter at length into a discussion of the relations of Vesalius with Sylvius. It seemed that the one blemish on the character of Vesalius was his ingratitude to Sylvius. Sylvius and his school were Galenites, while Vesalius believed that the science of anatomy should be founded on observation and had little sympathy for those who clung to tradition. The differences of these two anatomists had been ably discussed by Dr. Frank Baler, and whatever opinion one might form as to their controversies, the fact should not be overlooked that Sylvius had made contributions to anatomy that should not be forgotten, for instance, the fissure of Sylvius and the aqueduct of Sylvius. Other famous anatomists associated with Vesalius at the University of Paris were Andernacus Guinterius and Carolus Stephanus (Charles Estienne), who published a work on anatomy in 1545 which had been begun long before the figures of Vesalius appeared. Going a step further, one might make a study of the life of Vesalius in Italy, where he numbered among his colleagues Fallopius and Eustachius, who rivalled him in some respects. These men still regarded themselves as Galenites, though in truth they were no more Galenites than was Vesalius himself. Vesalius remained at Padua from 1537 to 1542, teaching at the same time at Pisa and Bologna. In

1542, conditions became so intolerable that Vesalius relinquished the struggle and in a moment of despair burned a great deal of his manuscript. It was during his stay at Padua that he returned to Louvain for a time and published his *Fabrica*, before he had reached his thirtieth year. After giving up his work at Padua he became court physician to Charles V and afterward to Philip II. One could not but feel that life at court was but little to the taste of a man who had spent his life in active scientific work, but from this time his life as a scientist was over. Later came his strange pilgrimage to Jerusalem, to account for which many theories had been advanced. It was held by some to be expiatory, and the story was told that he performed an autopsy on some member of the royal family, and when he opened the thorax the heart was found still beating; that he was tried for this offense, found guilty, and allowed to expiate it by a pilgrimage to Jerusalem. In the speaker's opinion, it was highly improbable that there had been such an occurrence. It was improbable, first, that Vesalius should have made such a mistake and it was the more improbable since the same accusation had been made against other anatomists. Unhappy domestic relations were supposed by some to have furnished the reason for this pilgrimage, but whatever the reason, the journey was undertaken. On his homeward way, Vesalius was shipwrecked, cast ashore on the Island of Zante, exhausted and in poverty, and here he died in 1564. *Fabrica Corporis Humani* was the most sumptuous and glorious work in the history of medicine, and was sufficiently rare and costly to be greatly sought after by the collector. The *Epitome* was even more rare than the *Fabrica*. To trace the actual contributions of Vesalius to anatomy would be a rewarding thing, for thus far these contributions had been treated in a rather summary way. Vesalius was often spoken of as the father of anatomy, but that was wrong; again he had been spoken of as the father of modern anatomy, but the speaker preferred to call him the "reformer of anatomy." He had given them the first comprehensive scientific treatment of anatomy studied for its own sake and actually described things as they presented themselves to the eye. Some of his contemporary anatomists still regarded him as a Galenite, but he had freed anatomy from the bondage of authority and started it on the path which it had since followed. Some of his work was of such permanent value that it might still be consulted with profit. By thus furnishing the basis of anatomy, he had laid the foundation for surgery, physiology, pathology, and therapeutics. He was the greatest figure in the development of anatomy from the time of Modino to that of Harvey. Anatomical laboratories existed from the sixteenth century onward. It was perhaps owing to the influence of Vesalius that anatomy had come to occupy a somewhat disproportionate place in the medical curriculum even to the present time. Vesalius played a part in the overthrow of Galenism. He described the theory of Galen with regard to pathology as being due to morbid material in the body and his therapeutics as having for their object the ridding of the body of this morbid material by purging, sweating, and blood letting. Another great figure of Vesalius's time, who also had a part in the overthrow of

Galenism, was Paracelsus. Paracelsus came very nearly to enunciating the germ theory of disease and contributed to the beginnings of chemistry and modern therapeutics. The main point was that Vesalius had laid the cornerstone of modern medicine as a science.

Anatomical Illustrations before and after Vesalius.—Dr. FIELDING H. GARRISON, of Washington, D. C., gave a lantern slide exhibition which he said he hoped would afford convincing evidence of the tremendous advance made by Vesalius in anatomical illustration. It seemed from the fact that the *Fabrica* was written in medieval Latin which few but the priests could understand, that it had never been fully translated, and one was very apt to ignore the text and to base his perception of the greatness of Vesalius upon these illustrations alone. Vesalius was to anatomy what Beethoven was to music; he literally exhausted the possibilities of his subject in the time in which his work was done. His anatomical illustrations might be likened to Beethoven's *Thirty-three Variations on a Waltz by Diabelli*. As Beethoven had given a series of patterns of all the figurations possible on the piano in his time, so the illustrations of the *Fabrica* gave to the post-Vesalian anatomists all the figurations of the human body which were possible to the wood engravers of his time. From the most extraordinary way in which his illustrations were plagiarized and copied by certain post-Vesalian anatomists, it was to be perceived that with all the technical beauties of Casserius and Bidloo, and with all the exquisite delicacy of Ruysch and Soemmering, hardly any new key, hardly any new note was sounded, until the advent of Scarpa and steel engraving, of Pirogoff and frozen sections, of lithography, photography, and electroplating, microscopic and morphological anatomy, of direct photography from nature and the nude. For the three centuries following, Vesalius set the vogue in high class anatomical illustration. There was no reference to anatomical illustration among the ancients, beyond vague references to paradigmata, schemata, and diagrams in Aristotle's *Historica animalium*, and if these referred to pictures, they were merely comparative and not human. There were a number of stock figures in the manuscript codices of Moschion representing the fetus *in utero*, which were constantly reproduced, and nude figures in various attitudes were a constant feature of miniature paintings in old parchments. From the twelfth century onward, there began to appear various manuscript drawings and miniature paintings in the old codices which had been investigated, mainly by Sudhoff and Giacomini. Ludwig Choulant was the great authority on published anatomical illustrations after the invention of printing with wooden blocks.

The lantern slides presented were from the collection of Dr. Frank Baker, of Georgetown University, who had made an extensive study of anatomical delineations. These illustrations showed the various concepts of the osseous, vascular, and nervous system and of the fetus *in utero*. They emphasized the remarkable influence of tradition for the three centuries after Vesalius. The same attitude was delineated in all the figures; it was that of a child's jumping jack which had just been pulled. One interesting slide illustrated a Zodiacal

figure from a calendar of 1475. According to this figure the points for blood letting were determined by planetary influence; in spite of its early date it showed a remarkable likeness to the figures in Hostetter's and the Hagerstown almanacs of not so long ago. Another slide of particular interest showed figures from Phries's *Spiegel der Artzney*, and *écorché* or flayed figures from Bernargio da Carpi in which the muscles were held up for inspection, a pose which was adopted in all the later works. Other illustrations were shown of drawings by Verocchio, Leonardo da Vinci, Michelangelo, and Raphael. One illustration of a deep dissection of the viscera by Leonardo was considered the most remarkable drawing of the time and would compare favorably with Max Brodel's rendition of the subject in Kelly's and Burman's recent work on *Diseases of the Kidney* (1914). This picture of Leonardo's was compared with one from the *Fabrica*, which showed a difference in artistic technic; the work of the *Fabrica* was more diagrammatic and less fascinating than that of Leonardo. It was supposed that Vesalius employed a great artist to assist him in producing his illustrations. A considerable number of post-Vesalian illustrations were shown, whose chief interest lay in the fact that through them all the influence of Vesalius could be traced.

Portraits of Vesalius.—Professor HARVEY CUSHING, of Boston, after referring briefly to the influences of the period of renaissance and speaking especially of the influence of Italian art which made itself felt in the development of anatomical illustrations chiefly through Leonardo da Vinci, Michelangelo, and Raphael showed a number of the anatomical drawings of these masters. These artists had made more particularly for their own use and they had not been published during their life time. They were particularly interesting as showing the power of observation of these great masters in the field of anatomy. Doctor Cushing then showed a succession of portraits of Vesalius. Some of these were unquestionably authentic, while the authenticity of others was doubtful. Several of the originals from which these illustrations had been taken were supposed to have been executed by Titian, and there was some suspicion that Titian had helped Vesalius with his anatomical illustrations. In closing, Doctor Cushing said it seemed rather strange that Vesalius having done so much work in anatomy that his name had not been more prominently impressed on the science he had reformed; nothing had been named after Vesalius, except the small opening in the sphenoid bone and the emissary vein passing through it. It was hard to tell why this was so unless it was because he had covered the whole ground so well. It was known that he had described the semilunar valves, the trapezium, and the mitral valve for the first time. It seemed that the lines from Kipling's *Explorer* were particularly applicable to Vesalius.

Have I named one single river? Have I claimed one single acre?

Have I kept one single nugget—(harring samples)? No, not I.

Because my price was paid me ten times over by my Maker.

But you wouldn't understand it. You go up and occupy.

Yes, your "Never-never country," yes, your "edge of cultivation"

And "no sense in going further" till I crossed the range to see.
God forgive me! No, I didn't. Its God's present to our nation.

Anybody might have found it but—His whisper came to Me.

Exhibition of Vesaliana.—In connection with the quadricentennial meeting there was an exhibit of Vesaliana comprising original editions of books published by Vesalius and also examples of the work of the anatomists who preceded and followed him. In a separate collection was an interesting group of books from his critics and opponents. The contributions to the exhibit were from the library of the New York Academy of Medicine, the Library of the Medical Society of the County of Kings, and by Dr. Harvey Cushing and Dr. Edward Clark Streeter, of Boston, Dr. Fielding H. Garrison, of Washington, Dr. W. B. Coley, of New York, and Dr. Lewis S. Pilcher, of Brooklyn, New York.

Letters to the Editors.

PROSTATIC ATROPHY AND MUMPS.

NEW YORK, March 1, 1915.

To the Editors:

The close, one is tempted to say mystical, connection between the parotid gland and the testes is well known. That an attack of parotiditis may result in atrophy of the testes, in aspermia or azoospermia with complete sterility, is also well known. Hardly known, however, is the connection between the parotid and the prostate, and still less known is the fact that an attack of parotiditis may cause atrophy of the prostate without apparent involvement of the testicles and the spermatogenetic function. The sterility may, however, be just as absolute nevertheless, for a normal prostatic secretion is an important constituent of normal seminal fluid, and its absence seems in many instances to be alone responsible for the lack of fertilizing power of the latter.

The writer has had seven cases of partial or complete (so complete that not a vestige of prostatic tissue could be made out) atrophy of the prostate, in which an antecedent parotiditis seemed to be the sole etiological factor; in some of these cases (five) the atrophy was accompanied by atrophy of the testicles; in two the testicles seemed to be unaffected. These interesting cases will be reported in detail later on. But the object of these lines is to call the attention of the profession to the connection between the parotid and the prostate, and to ask them to report, either in the pages of the *NEW YORK MEDICAL JOURNAL* or to me directly, any cases of prostatic atrophy in which parotiditis was the positive or probable etiological factor.

The relationship existing between far distant glands, organs, and tissues and the genital organs forms a fascinating field of study and research.

WILLIAM J. ROBINSON, M.D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Evolution of Sex in Plants. By JOHN MERLE COULTER, Head of the Department of Botany, University of Chicago. Chicago: The University of Chicago Press, 1914. Pp. 140. (Price, \$1.)

It has been said that every professional man should have a hobby, which is tantamount to saying that one should have some interesting and profitable means of diversion

from his main occupation. If one's hobby is reading, we can recall no recent book which should be more welcome than this small volume by John Merle Coulter. He has rendered a double service by having chosen a subject of great inherent interest and by having written about it in a simple and easy style. He leads the reader step by step from the primal asexual reproduction of plants through the different stages by which the sexual method was evolved, and, although the book is a record of facts, it makes reading which is quite as interesting as fiction to one who is not a biologist or botanist. We must confess that when we laid the volume down after having read it we were reminded of Oliver Twist, for we felt that we wanted more.

Report on the Ophthalmic Section of the Department of Public Health, 1913. By the DIRECTOR OF OPHTHALMIC HOSPITALS, Ministry of the Interior, Egypt. Cairo: Government Press, 1914. Pp. 25.

The number of hospitals operating in Egypt during the year 1913 was twelve, of which four were opened during the course of the year. Traveling hospitals have been used and have proved of great benefit. These hospitals have been supported by grants from the Government and by private funds. The surgical work of the hospitals is performed by twenty-one Egyptians who obtained their postgraduate work in ophthalmology in the ophthalmic hospitals of the country. The traveling hospitals spend six months at a given place and visit various towns during the course of the year. The number of outpatients treated during the year reached over 500,000, and the average number of visits of each patient was 13.3. Nearly one third of the patients were children under one year of age. The operation for entropion and trichiasis is very frequently performed, Snellen's operation, somewhat modified, or Van Millingen's grafting operations being most often done. A large number of cataract cases cannot be operated in because of the condition of the cornea or lids. Glaucoma simplex is met with in 3.43 per cent. of the cases examined. Elliott's operation has almost entirely superseded the classical iridectomy operation in this condition. In old people where the conjunctiva is friable, it may be better to do an iridectomy. The conjunctival flap should not be grasped with a forceps, as it is liable to tear, but should be stroked down on the cornea with the convex side of the closed iris forceps. The conjunctival flap is not stitched. Iridectomy through the trephine hole is invariably performed. Trachoma is present in about ninety-six per cent. of the population of Egypt. The more contagious cases which amounted to sixty per cent. of the school children in 1907, have been reduced to about seven per cent. Estimation of refraction is made by retinoscopy under atropine and the necessary glasses are prescribed for the school children. Blindness was present in over fourteen per cent. of somewhat more than 60,000 cases examined. Patients who cannot count fingers at one metre are considered blind. Over seventy per cent. of the blindness is due to the various forms of conjunctivitis seen in Egypt. A large number, however, are blind as the result of secondary glaucoma and it is advisable to perform a prophylactic iridectomy as soon as possible after adhesion of the iris to the cornea has taken place. The work of the hospitals is to be extended so that the capital town of each Province shall have a permanent hospital. In addition, traveling hospitals will be maintained in some Provinces. It is estimated that more than one half of the total population of Egypt requires operation because of eye conditions.

Cunningham's Manual of Practical Anatomy. Revised and Edited by ARTHUR ROBINSON, Professor of Anatomy in the University of Edinburgh. Sixth Edition. Volume Second. Thorax; Head and Neck. With 267 Illustrations in the Text and 11 Plates. New York: William Wood & Co., 1914. Pp. xxx-636.

It is almost enough praise to remark that this manual has reached its sixth edition. The topical arrangement, the clear text, the remarkable illustrations in color, and the skiagraphs of the normal joints contribute to make the volumes among the most valuable of the student's armamentarium. The B. N. A. nomenclature is generally employed but the old terminology is also given for those familiar with that system. The topics are arranged in the order in which they are found in the dissection, the accompanying

varicolored drawings amply elucidate the well written text, and in all respects the work merits our highest commendation.

Year-Book of Pharmacy. Comprising Abstracts of Papers Relating to Pharmacy, Materia Medica, and Chemistry. Contributed to British and Foreign Journals. From July 1, 1913, to June 30, 1914, with the Transactions of the British Pharmaceutical Conference at Its Fifty-first Annual Meeting, Held in Chester, July 20-23, 1914. Editor of the Abstracts, J. O. BRAITHWAITE. Editor of the Transactions, REGINALD R. BENNET, B.Sc., F.I.C., Compiler of New Remedies Section, THOS. STEPHENSON. London: J. & A. Churchill, 1914. Pp. 552.

This is essentially a reference book for those who are primarily interested in pharmacy and in materia medica from the pharmaceutical point of view, but it is by no means devoid of interest for the physician who would keep himself abreast of the times in his therapeutics. For those who wish to delve into fields allied to clinical medicine, but usually considered as being rather apart from its proper domain, there are abstracts from the recent literature on the chemistry of drugs, including the alkaloids, animal products, glucosides, and inorganic and organic chemicals. Eleven pages are devoted to excerpts from the literature bearing upon the newer clinical tests which should be of special interest to the physician. New remedies are discussed briefly in a chapter of a little over ten pages, and this is followed by a valuable series of brief abstracts bearing upon the new applications of remedies. Both of these chapters are edited by Thomas Stephenson and their presentation does him full credit. Many suggestions for the improvement of the physician's magistral prescriptions could be culled from the section devoted to the subject of dispensing, and that upon galenical pharmacy should serve a similar purpose. The section on Notes and Formulæ is also a mine of useful information for the physician who would avail himself of his opportunities. Finally, here and there in the transactions of the British pharmaceutical conference there are to be found some papers of direct medical interest, such as one by Finnemore on the incompatibility of strychnine and other nux vomica alkaloids, one on an improved method of administration of fluid extract of aspidium by Crossley-Holland, and a second by Finnemore on the anesthetic ether of commerce. A good index helps to complete this interesting volume, which is marred in its text only by the occurrence of some typographical errors and by the fact that the list of references is not as complete as could be desired.

Interclinical Notes.

Evelyn Sunk in the Safety Zone, was an unconsciously humorous headline in some of the newspapers for February 28th.

Our readers should find special interest and food for thought in an article on war relief work in Russia, in the *Outlook* for February 24th, by George Kennan, one of the most thoroughly instructed men alive in all matters Muscovite. Beside helping their own sick and wounded, the Russians have contributed liberally to the relief of sufferers in Belgium, Servia, Poland, and the Caucasus. One society has sent out over 500,000 books for the use of convalescents.

An amusing complication in the matter of furnishing reading matter for convalescent soldiers, referred to by George Kennan in the *Outlook* for February 24th, was, that of 500,000 books speedily contributed, many were thought to be "pernicious" by the authorities on account of their democratic teachings, and were therefore held back. Over books sent to Russian prisoners in Germany, however, the amiable censors can have no control, and as one man able to read can instruct fifty or more hearers, some modern ideas are bound to leak into the brain of many a Russian private, possibly to make trouble when the war is over.

The High Cost of Smoke—which is waste, according to Lewis Edwin Theiss, who writes on the subject in the *Out-*

look for February 24th, is a serious matter in towns like Pittsburgh. In view of some sentiments expressed in a recent editorial article in this JOURNAL on the connection between certain kinds of smoke and cancer, an investigation into this disease in our smokier towns and their environs might not be without result.

The *British Medical Journal* for February 15, 1915, in a footnote to an abridged communication from Dr. A. E. Vipond, of Montreal, contains the following extraordinary reference: NEW YORK MEDICAL JOURNAL, 1912, 10, 10653! We think that we give value received for the annual subscription price, but we really cannot offer over 1,000 pages to the issue. Other remarkable features of the reference in question are that it gives the names as Swift and Elliott instead of Swift and Ellis (Treatment of Syphilis of the Central Nervous System) and that the weekly number is wrong. The correct form would be NEW YORK MEDICAL JOURNAL, 28, 53, 1912, or, as we should give it, xcvi, 2, 53, 1912.

Old Dr. Rupert Hughes, who has in his stories the finest treatment in the world for neurasthenia, continues in the *Red Book* for February his absorbing novel, *Empty Pockets*. The *Red Book* is published in Chicago, and we fear that the inhabitants of that town are bursting with envy at the fearful picture our colleague draws of the metropolis. Harris Merton Lyon refers respectfully to our city in the title of his short story, *Children of the Wise Town*. There is an amusing physician in *The Trouseau* by Mrs. Wilson Woodrow and some capital suggestive medicine. Better Babies, by Edward L. Sabin, loses nothing of its characteristic humor by Cory Kilvert's inspired drawings of children.

Among much entertaining matter in the February *Review of Reviews*, is an article on guarding against the infection from war epidemics, based on a paper by Weichselbaum in the *Oesterreichische Rundschau*. After mentioning typhus and typhoid, the translator speaks of "flux" (*Fluss*, rheumatism) as one of the epidemics, which points to the advisability of having a medical man on the editorial staff, as some progressive periodicals have already understood. We hope no newspaper will be inspired to write on a new and horrible war disease, "the flux" no less. The uninitiated reader of the *Review* article would also be likely to think of spotted fever and typhus as different diseases, from the way the translator refers to them.

Twilight sleep has laid its lethal hand upon the "movies," the last word in advertising the morphine-scopolamine anesthesia to the feminine public. After a few preliminary flickers, an obvious villain in disguise gains access to a maternity hospital, administers ethyl chloride by inhalation to the sleeping heroine, Elaine, and follows this up by an injection of scopolamine. He then orders the unconscious young woman to open a safe of which she knows the combination, and to write a letter. On awakening, Elaine remembers nothing of these exploits. Mr. Reeves, the author, is remarkably clever in his adaptation of the advances in science to fictional crime and its detection, but did not the Board of Censors nod in passing so palpable a chart of instructions for committing a crime? Probably, however, any burglar who attempts to carry out Mr. Reeves's suggestions, will wind up in a police cell with his armamentarium of anesthetics and apparatus.

Meetings of Local Medical Societies.

MONDAY, March 8th.—New York Ophthalmological Society; Society of Medical Jurisprudence, New York; Roswell Park Medical Club, Buffalo; Williamsburg Medical Society, Brooklyn; New Rochelle, N. Y., Medical Society.

TUESDAY, March 9th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Federation of Medical Economic Leagues of New York; Medical Society of the County of Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine (Section in Medicine); New York Obstetrical Society.

WEDNESDAY, March 10th.—New York Pathological Society; New York Surgical Society; Alumni Association of Norwegian Hospital, Brooklyn; Schenectady Academy of Medicine; Medical Society of the Borough of the Bronx; Richmond County, N. Y., Medical Society; Dunkirk and Fredonia Medical Society; Rochester Academy of Medicine.

THURSDAY, March 11th.—New York Academy of Medicine (Section in Pediatrics); Gloversville and Johnstown Medical Association; Physicians' Club of Middletown; West Side Clinical Society, New York; Brooklyn Pathological Society; Blackwell Medical Society of Rochester; Jenkins Medical Association, Yonkers; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of Village of Canandaigua.

FRIDAY, March 12th.—New York Academy of Medicine (Section in Otolaryngology); Society of Ex-Interns of the German Hospital in Brooklyn; Flatbush Medical Society, Brooklyn; Eastern Medical Society of the City of New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending February 24, 1915:

Earle, B. H., Passed Assistant Surgeon. Ordered to proceed to Port Angeles, Washington, to make inspection and report on inspection and fumigation of vessels.

Fricks, L. D., Surgeon. Directed to proceed to Victor, Mont., to arrive by the opening of spring, for the purpose of carrying on operations for the prevention of the interstate spread of rock mountain spotted fever.

Kerr, J. W., Assistant Surgeon General. Directed to proceed to Spartanburg, S. C., and Savannah, Ga., and such other places in South Carolina and Georgia as may be necessary to advise in respect to the selection of pellagrins for transfer to hospitals, and to planning future pellagra studies to be carried on at Spartanburg.

McIntosh, W. P., Surgeon. Having been relieved from duty at Portland, Me., and placed on waiting orders, directed to proceed to his home at Cooksville, Md.

Nydegger, J. A., Surgeon. Granted one day's additional leave of absence on account of sickness.

Spratt, R. D., Passed Assistant Surgeon. Having been relieved from duty at Gloucester City, N. J., and placed on waiting orders, directed to proceed to his home at Livingston, Ala.

Boards Convened.

Board of commissioned medical officers convened to meet at the bureau, Monday, March 8, 1915, at 10 o'clock a. m., for the purpose of examining applicants for appointments as assistant surgeons in the Public Health Service. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General L. E. Cofer, member; Assistant Surgeon General W. C. Rucker, recorder.

Board of commissioned medical officers convened to meet at the bureau, Washington, D. C., February 24, 1915, for the medical survey of an officer of the United States Coast Guard. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Passed Assistant Surgeon Robert Olesen, recorder.

Board of medical officers convened to meet at Detroit, Mich., for the reexamination of an alien. Detail for the board: Surgeon H. W. Austin, chairman; Surgeon H. W. Wickes, member; Acting Assistant Surgeon K. L. Weber, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending February 27, 1915:

Jones, E. C., Captain, Medical Corps. Granted twenty days' leave of absence, on surgeon's certificate, on relief from Walter Reed General Hospital, Washington,

D. C. McDiarmid, Norman L., Captain, Medical Corps. Granted fifteen days' leave of absence.

Births, Marriages, and Deaths.

Born.

McComb.—In Wichita, Kan., on Thursday, February 11th, to Dr. and Mrs. F. J. McComb, a daughter.

Rothrock.—In Reading, Pa., on Wednesday, February 17th, to Dr. and Mrs. Addison M. Rothrock, a daughter.

Married.

Bullington—Christian.—In Springfield, Ill., on Wednesday, February 17th, Dr. Grover C. Bullington and Miss Margaret Christian.

Dwyer—Sherlock.—In Waterbury, Conn., on Tuesday, February 16th, Dr. Patrick J. Dwyer and Miss Lucy M. Sherlock.

Grannis—Craigie.—In St. John, New Brunswick, on Tuesday, February 16th, Dr. Irving V. Grannis, of Menomanie, Wis., and Miss Sybil Craigie.

Wagner—McKead.—In Wilkesbarre, Pa., on Tuesday, February 16th, Dr. Edward C. Wagner and Miss Margery Louise McKead.

Wentz—Shoemaker.—In Allentown, Pa., on Saturday, February 20th, Dr. Frank T. Wentz and Miss Katherine Shoemaker.

Died.

Allen.—In Woodstown, N. J., on Wednesday, February 17th, Dr. Lefferson A. D. Allen, aged seventy-five years.

Allen.—In Tonawanda, N. Y., on Wednesday, February 17th, Dr. William L. Allen, aged sixty-seven years.

Brady.—In Ohiopole, Pa., on Tuesday, February 16th, Dr. Hugh Young Brady, aged seventy-four years.

Brobst.—In Litzitz, Pa., on Monday, February 15th, Dr. James C. Brobst, aged seventy years.

Brown.—In Kingston, Ontario, on Sunday, February 14th, Dr. Marshall Jacob Brown, aged eighty-three years.

Combe.—In Freemont, Iowa, on Friday, February 12th, Dr. Louis Combe, aged forty-five years.

Deemy.—In Bellefontaine, Ohio, on Monday, February 15th, Dr. John S. Deemy, aged forty-nine years.

Flint.—In Dracut Centre, Mass., on Tuesday, February 16th, Dr. Omar A. Flint, aged seventy-two years.

Griffin.—In Greenfield, Ind., on Wednesday, February 17th, Dr. Loyal B. Griffin, aged fifty-six years.

Hecht.—In Chicago, Ill., on Tuesday, February 16th, Dr. D'Orsay Hecht, aged forty-one years.

Holson.—In Iola, Ill., on Wednesday, February 17th, Dr. Ralph R. Holson.

Husler.—In Pittsburgh, Pa., on Sunday, February 14th, Dr. E. G. Husler, aged sixty-one years.

Johnson.—In Augusta, Me., on Thursday, February 18th, Dr. Wellington Johnson, aged sixty years.

Kirkpatrick.—In Thebaw, Burma, on Wednesday, February 10th, Dr. Murray Baldwin Kirkpatrick, of Ottawa, Ill., aged sixty-five years.

Ladd.—In Traer, Iowa, on Saturday, February 13th, Dr. J. A. Ladd, aged eighty-five years.

Magers.—In Churubusco, Ind., on Monday, February 15th, Dr. Francis Marion Magers, aged seventy-seven years.

Mason.—In Santa Rosa, Cal., on Tuesday, February 16th, Dr. Matthew Mason, aged seventy years.

Mills.—In Oxford, Canada, on Monday, February 15th, Dr. Wesley Mills, aged sixty-eight years.

Mitchell.—In Hamburg, N. Y., on Saturday, February 13th, Dr. Lester Charles Mitchell, formerly of Minneapolis, aged seventy-three years.

Nash.—In Philomath, Ga., on Sunday, February 14th, Dr. W. T. Nash.

Nichols.—In Sacramento, Cal., on Tuesday, February 16th, Dr. Henry L. Nichols, aged ninety-one years.

Patterson.—In Yorktown, Kan., on Saturday, February 13th, Dr. A. Patterson, aged eighty-three years.

Pearsall.—In Brimfield, Mass., on Thursday, February 18th, Dr. William S. Pearsall, aged fifty-four years.

Sabine.—In Garden City, Kan., on Sunday, February 14th, Dr. Andrew Sabine, aged eighty-four years.

Scannell.—In Boston, Mass., on Friday, February 19th, Dr. James J. Scannell, of Brighton, Mass., aged forty years.

Stagg.—In Passaic, N. J., on Wednesday, February 17th, Dr. Frank Stagg, aged thirty-seven years.

Stilians.—In Redlands, Cal., on Saturday, February 13th, Dr. D. C. Stilians, aged seventy-two years.

Tircuit.—In Abbeville, La., on Sunday, February 14th, Dr. Pierre C. Tircuit, aged seventy-seven years.

Tupper.—In Brooklyn, N. Y., on Monday, February 22d, Dr. Charles Osborne Tupper, aged fifty-two years.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843

VOL. CI, No. II.

NEW YORK, SATURDAY, MARCH 13, 1915.

WHOLE No. 1893.

Original Communications.

THE TREATMENT OF MENTAL AFFECTIONS AS THEY ARE MET WITH IN GENERAL PRACTICE.*

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Philadelphia,

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In a sense I feel that I have a special right to speak from the standpoint of the general practitioner, as many of my earlier years were spent in the arduous, trying, and varied work of general practice. The general practitioner is in the vanguard in the struggle against disease. It is he who sees disease in its most manifold forms and he sees it first. It is only later on, if at all, that other physicians who have devoted themselves to some special field are called in. At one time it is the abdominal surgeon, at another the ophthalmologist, and at another still the neurologist. In our country the practice of medicine has differentiated itself into two branches largely comparable to the division which has taken place in the practice of law in England. In England there is the general legal practitioner who attends to all sorts of legal matters and who has in his charge the legal welfare of families extending often over many generations. A given family has perhaps been under the care of the father of such a practitioner, or of his father's father and perhaps longer still. Such a practitioner is known as the solicitor. In addition there is another practitioner who is known as the barrister. The barrister is purely a consultant; he has no relations with the client save through the solicitor, and he is selected because of his special knowledge pertaining to a given case in hand. If a special legal battle is to be fought, even the instruments of that battle, the witnesses, are furnished and the evidence prepared by the solicitor. In this way an entirely equitable and efficient arrangement results. The parallelism between the work of the general medical practitioner and the medical consultant on the one hand and that of the solicitor and barrister on the other, is still further borne out in that the material furnished to the practitioner and consultant is necessarily the same, and finally in that in both instances it is the general practitioner who sees the material first. Often too the separation between the practitioner and the consultant is not as great as might at first sight be supposed. Particularly is this true in the field

of nervous diseases. One or more out of every five cases which enter a physician's office are nervous cases, and every general practitioner must therefore in a degree be a neurologist. In mental diseases the tie is even closer. Mental diseases are so frequently connected with the internal diseases which come under the care of the general practitioner, that he necessarily comes into contact with mental affections with great frequency. Furthermore, even the diseases which are commonly regarded as being distinctively mental are now proving with an increasing knowledge to be due to disturbances of metabolism, disturbances which lead to phenomena of intoxication, and in which the course and symptoms of a given disease strongly resemble those of an infection with the subsequent and gradual establishment of immunization. Space will not permit me to deal with modern views of the pathology of insanity, views which bring insanity within the province of internal medicine, but only to consider briefly the things which the practitioner must do when he meets with mental cases.

Among the most common of all disturbances which he meets with is the delirium which accompanies the ordinary febrile affections, the various exanthemata, and infectious diseases generally. Such a delirium we all know rarely requires special treatment. The treatment and management of the underlying disease as a rule alone concerns us. However, delirium occurs sometimes during the post-febrile, the convalescent period of an infectious disease; e. g., typhoid fever, grippé, or erysipelas. Again we are only too familiar with the delirium the result of alcoholic excess and also occasionally meet with toxic deliria due to other causes.

The treatment of a delirium must, of course, be conducted upon general principles, and these resolve themselves into three indications; first, the elimination of the poison; secondly, the maintenance of the strength, and, thirdly, the allaying of the excitement as far as may be necessary. The means at our command consist in the free administration of water, the free use of baths, the free administration of nourishment, and the administration, when necessary, of cardiac stimulants and sedatives.

Sometimes sponge bathing in bed is applicable; of course, the most efficient form of bath is the prolonged warm immersion bath, at 90° or 95° F. However, in ordinary household practice a warm immersion bath can only exceptionally be used. It is not practicable, as a rule, to carry a struggling patient to a bathroom and subject him to the necessary handling and manipulation. Much more valuable and much more efficacious in many cases is the

*Read before the Philadelphia County Medical Society, January 13, 1915.

warm pack. The latter has the additional advantage of bringing the patient, if struggling, under ready control. As a rule, profuse sweating results, with a marked diminution in the excitement. If the patient is robust and the need urgent, a hypodermic injection of pilocarpine hydrochloride, grain one eighth or one quarter, may be given at the same time. I have found this expedient to be followed by the most gratifying results. That pilocarpine should, of course, be avoided when there is cardiac weakness or when there is already a tendency to leakage from the skin and mucous membranes is obvious. Furthermore, the wet pack must not be too long continued, not more than two hours, and must not be too frequently repeated. Finally, it is important in given cases, i. e., if the delirium is violent and persistent and the patient is expending much strength in his struggles, to administer sedatives. No well founded objection can be made to their judicious employment, for the quiet and sleep produced are of the utmost benefit; indeed, at times, save life. Here an expedient which has for some years been practised in Germany is of great value, namely, the hypodermic injection of small doses of scopolamine and morphine. Of late, this expedient has attracted widespread attention because of its introduction into the obstetrical clinic at Freiburg in the production of so called "twilight sleep." It was long before used by alienists, however, and even by surgeons, for it was found to produce a degree of sleep and sedation sufficient to enable serious and tedious operations, such as those upon the prostate, to be carried out safely and with success. The dose required to produce quiet in an active delirium may be exceedingly small, e. g. scopolamine grain $\frac{1}{200}$ and morphine grain one sixteenth, though frequently $\frac{1}{100}$ of the former and one eighth of the latter are required. The two drugs act synergistically, one reinforcing the other. Many patients after such an injection permit of a manipulation impossible before. A bath or wet pack which would have been given, if at all, only with the greatest difficulty, can now as a rule be given quite readily. Such a patient is also much more amenable to other procedures, such as the giving of liquids and other medicines by the mouth or the giving of an enema.

An expedient which is sometimes of great service in alcoholic delirium, is the giving of a full dose of paraldehyde. The latter, in spite of its disagreeable odor and taste, is as a rule readily swallowed by the alcoholic, especially if it is suspended in whiskey. It produces sleep in a very few minutes and is not attended by the slightest cardiac or respiratory depression. Inasmuch as the sleep produced is likely to be short, other sedatives such as trional, sulphonal, medinal, or veronal, may be given subsequently, but they are rarely necessary.

Fortunately, deliria of whatever origin are of relatively short duration. Notwithstanding, there is in given cases danger of exhaustion. This must be met by the administration of nourishment, preferably milk, and if the heart action is weak, by stimulants and heart tonics.

Every now and then a delirium does not clear up, and instead the patient passes into a more or less prolonged period of confusion; or, it may be, that a confusion of exhaustion and toxemia constitutes

the picture from the very beginning. This is now and then the case in the postfebrile periods of exhausting infections such as typhoid fever. When once established, a confusion lasts many months, three or four. There are present two factors, one the toxins of infection and deranged metabolism, and the other exhaustion. As before, the indications are the maintenance of the patient's strength and the general control of the symptoms. As a rule, cases of confusion are quite manageable. Food can usually be administered without much difficulty, and the patients permit themselves to be handled and bathed readily. Medication, if used at all, should be of a supporting character. Sedatives are at times indicated, but should not be used as a routine.

Stuporous states supervening upon the infections demand a similar treatment. Full feeding and the maintenance of the various functions are again indicated. Now and then the stupor is so pronounced as to necessitate feeding with the nasal tube. Usually this offers no special difficulties. As a rule, patients with delirium can be cared for in their own homes. Commitment is especially unnecessary and unjustifiable because of the usual short duration of the attack; several hours or at most several days. It is an exceedingly unpleasant experience for a physician to send a patient to an asylum and then have that patient clear up almost immediately or within a few days after admission. The physician should always insist upon a sufficient period of observation to enable him to make at least an approximate diagnosis. Especially should the mistake be avoided of confounding a delirium with a mania. A delirium has a duration of a few hours, a few days, or exceptionally a week or two. A mania, on the other hand, has a duration of several months. The differentiation between the excitement of a delirium and a mania is not difficult. In delirium there is a rapid appearance of mental confusion, with illusions, hallucinations, and unsystematized delusions, usually painful and terrifying. There is also mental obtusion, and it is difficult or impossible to bring the patient into relation with his environment. The excitement of mania, on the other hand, is characterized by an absence of confusion; on the contrary, there is a high degree of lucidity; there are no hallucinations, and delusions form no feature of the picture. If delusions are present, they are fleeting, evanescent and pleasurable or expansive in character. Finally, the patient is in close touch with his environment. In other words the picture of delirium is that of obtusion, confusion, distress, or fear; that of mania, clearness, exaltation, expansiveness, aggressiveness.

Mania is met with relatively infrequently. The affection is of such a character that it cannot be treated outside of an asylum. This is true not only of the typical cases, but also of the milder form, that termed hypomania. The latter form sometimes presents great difficulty. The patient may be wildly expansive and exalted, may be loud, boisterous, reckless, and extravagant, and yet the lucidity of mind may be so great as to lead the friends of the patient to scout the idea of insanity. Sometimes it is not until some outburst, some infraction of the law, some overt act occurs, that the true condition of the patient is realized. Quite often if such a case is com-

mitted, misguided friends and others espouse his cause, endeavor to secure his release, and much personal annoyance may be caused the physicians and members of the family. Such cases often present great difficulties, for at times they can neither be safely committed, nor can they be successfully controlled outside. In practice, melancholia is the only member of the manic depressive group which can be successfully treated outside of institutions, and this only when the melancholia is mild in degree and under special circumstances. If the patient is actively delusional and hallucinatory the case is obviously one for commitment. It is only in the comparatively lucid and milder forms that an attempt to treat the patient outside of an asylum should be made, and for the further reason that such cases cannot be legally committed. Time will not permit of a detailed discussion of the extramural treatment of a case of melancholia. Suffice it to say that the best results are secured by full rest methods such as are carried out in the treatment of neurasthenia. There is one factor, however, that must be borne in mind, and that is the tendency to suicide, a tendency which is more or less present in every case. Self destruction is best guarded against in the asylum, though it cannot be absolutely guarded against even there. Outside of the asylum walls, where many of our lucid cases of melancholia must necessarily be, the protection possible to throw about the patient not infrequently proves ineffectual.

Cases of dementia præcox are in the greater number of cases of such a character as to necessitate asylum commitment. Some of the milder cases are benefited by rest and general physiological methods, and undoubtedly in a given number of cases a recovery is brought about by these means. The frequency with which a positive Wassermann reaction is found in dementia præcox suggests also the making of this test in every case and of the further necessity of carrying out a treatment based upon the findings. The importance of retraining and re-educational methods in suitable cases needs hardly to be pointed out.

Paranoia and paranoid cases generally are not suitable for extramural treatment. However, we every now and then meet with mild and comparatively harmless cases, and the friends of the patient will often in such cases strongly object to commitment; at times, too, the lucidity of the patient is such that it is doubtful whether he would be held by the asylum authorities. In such cases ordinary physiological methods are of little use, and it is a wiser plan to enlist the patient, if possible, in some simple employment, preferably out of doors, such as farm work, trucking, or gardening. If the patient is employed he will eat better, sleep better, and pay less attention to his delusive ideas. The friends of the patient should always be warned, however, that paranoia, even when mild, rarely remains stationary, that it is usually progressive, and that the time may come when the patient will be dangerous and violent.

There is one group of patients whom we are rarely justified in committing to the asylum, namely, cases of psychasthenia. These the French formerly grouped under the head of neurasthenic insanity and which, because of the two elements, nervous exhaus-

tion and neuropathy, which enter into their composition, I have myself termed neurasthenic neuropathic insanity. These are the patients who present the special forms of fear—the phobias, the *Angst-neurose* of the Germans—the chronic indecisions or insanities of doubt, the defects of inhibition termed by the Germans the *Zwangsneurose*, and, finally, the deficiencies of the will termed by the French the *aboulia*s. Here the treatment must necessarily be limited to simple physiological procedures into which rest methods and suggestion, various forms of psychotherapeutics and training, must of necessity enter. This is the field which has been especially exploited by the psychoanalysts, of whose methods time will not permit me to say more than that I unreservedly condemn them. One point of practical importance must be especially emphasized and that is that many of these patients present the unmistakable evidences of a hypothyroidism. That some cases improve upon the administration of small doses of thyroid extract is a necessary corollary.

Of the various other forms of mental disease which confront the practitioner, such as the melancholia of middle life, and the dementia of old age, each requires a treatment based upon general principles and common sense.

In conclusion, let me emphasize the importance of simple physiological procedures such as rest and full feeding. Remember that rest and full feeding especially promote the formation of antibodies, and they therefore possess not only a general but a special therapeutic value. The importance of bathing, massage, out of door life, and occupation later need hardly be recalled to your minds.

There is only one matter more, and concerning this I wish to express a warning: Never be in a hurry to make a diagnosis of insanity; always insist upon sufficient time and sufficient opportunity to study the patient. If you are in doubt, do not commit. Finally, do not insist upon commitment when the friends and relatives oppose this course. Remember that you are only a physician and not a policeman, that your function ceases when you have given your advice, and finally bear in mind that in carrying out a commitment you incur a legal liability.

1719 WALNUT STREET.

SYPHILIS IN ITS MODERN TREATMENT*

BY VICTOR C. PEDERSEN, A. M., M. D.,

New York,

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The difficulty before me is that of reaching any reasonable measure of the length, breadth, and depth of the one great question of the day—the treatment of syphilis. The ideas advanced are born of years of careful observation, experience, and on the whole, good results, which when they have failed have been due chiefly to disobedience or neglect by the patients. The elements of the subject appear to be the time of beginning treatment, the

*Read before the East New York Medical Society, by invitation, on January 21, 1915, and before the Clinical Conference of St. Mark's Hospital, March 5, 1915.

method to be selected, the application of this method to the disease itself, the balance of the treatment with reference to the constitution and needs of the patient, the place of salvarsan, neosalvarsan and mercury in the management of the disease, the value of the Wassermann complement fixation test in the clinical control of the case, the duration of treatment, the cessation of management, subsequent observation, and the repetition of the Wassermann blood tests later in life. Directly a part of the subject is the management of relapses during the first two years, that is, the first and second stages, and during subsequent years or the tertiary stage.

Initiation of treatment should be with immediate diagnosis and without the classic delay for the onset of the secondary symptoms in the chancrous stage or the accepted delay for the so called touch stone measures, that is, the primary effect of mixed treatment in undetermined lesions. Immediate diagnosis should be reached by examination of a chancre for *Treponema pallidum*. It is reasonable to say that the community has a right to demand that no one should undertake the treatment of syphilis who is not able to recognize the organism with the dark field illuminator, or the India ink smear, or willing to secure and submit suitable specimens to a pathologist, including sections of the chancre in doubtful cases. In passing it is well to note that the Department of Venereal Diseases, of the Department of Health of the City of New York, will not rate as first class, officially approve or refer any patients for treatment from its own Advisory Clinic for Venereal Diseases to any dispensary or hospital in which this refinement of diagnosis is not followed.

The administration of mixed treatment as a diagnostic aid is well nigh obsolete in virtue of the Wassermann complement fixation test, and it is only when the latter is absent or uncertain that resort must be had to it. Even in these circumstances a carefully taken history and a thorough physical examination will, in the majority of cases, immediately supply the missing link in the chain of evidence and avoid the delay which is only a detriment to the patient.

The early diagnosis must include not only the presence of syphilis, but also of other conditions primary to, concomitant with, or secondary to its influence on the organism. Just as it is necessary for the physician to know later in life whether or not the patient has had syphilis, so is it requisite for him to examine thoroughly for other lesions on account of the influence of syphilis in both instances. In particular it is essential to know the condition of the circulatory system as to changes in the heart muscle, vessel walls, and blood itself, and the state of the urinary system concerning alterations in the kidney substance and the urine. All these details of knowledge are determining factors in the character, energy, and repetition of treatment. Immediate diagnosis and instant treatment are, therefore, the watchwords.

Judged from the nature of the infecting organism, which outside the body in laboratory experiments is now known to die in ordinary circumstances within from six to twelve hours on the surface of such utensils as glassware, but which inside the body grows with silent persistence and unsus-

pected treachery and often immeasurable resistance to medication, the indication of treatment is to overwhelm the infection but not the patient during the first six months of the disease, and thereafter to continue the treatment with regular and well balanced progress for at least three years, and finally to maintain observation of the individual every few months for three years more.

Every physician attempting to treat syphilis should keep in mind one question, How should I wish to be treated, if the victim? That which follows in this paper is the author's answer in his own behalf were such circumstances existent.

In the primary stage, wet antiseptic mercurial dressings are the choice until the chancre is cleansed and beginning to granulate. These are followed by white or blue mercurial salve until the lesion has covered over with new skin, and the author believes it is good practice to continue the application of the salve for several weeks thereafter in order to promote absorption of the infiltration as far as possible. When the salve is not convenient, mercurial plaster may be pasted on the lesion where its presence is possible.

In the presence of normal circulatory and urinary organs, the immediate administration of salvarsan



FIG. 1.—Instruments for the administration of neosalvarsan. From left to right are: Green soap, alcohol, iodine, gauze sponges, cotton toothpick swabs, lid of the Record syringe case containing 19 c. c. of distilled water, tourniquet, neosalvarsan, file, syringe, assorted needles, and dressing with adhesive plaster.

or neosalvarsan is required. At the moment the consensus among experts is in preference of salvarsan to neosalvarsan. This view may arise from the fact that the medical world had become accustomed to the former in application and familiar with its result in the disease and the patient and that, knowing its tendency to toxicity, physicians have been timorous in their applications of its modification, neosalvarsan. The author is not altogether convinced of the fitness of this view, and is rather inclined to take the judicial standpoint until an equal number of results of the frequently repeated full dose administration of neosalvarsan shall have been reported for comparison and study of immediate and remote results. For the laity the immediate effects of neosalvarsan are so much less trying physically in nausea, vomiting, diarrhea, prostration, high temperature, and cardiac and renal disturbance, and so much less expensive in loss of time by confinement to hospital or home than those of salvarsan, that they invariably prefer it. Chemically and doubtless therapeutically, it is fifty per cent. less energetic, but this difficulty may be overcome by larger doses in the general ratio of 0.9 gram of neosalvarsan to 0.6 gram of salvarsan, and by

nearly double the frequency of administration. The writer's practice at the present time and for about eighteen months has been to administer the neosalvarsan up to the limit of the patient's tolerance, every week for from four to eight doses, likewise in accordance with his tolerance duly determined by the aftereffects, especially on the kidneys and digestive system. With the slightest indication of irritation of the kidneys, indigestion, or cutaneous manifestation of arsenic, a period of rest is given, in length equivalent to the period of administration or until the aftereffects have totally vanished. At this point another series of injections is begun and managed in exactly the same manner, so that during the period of intensive treatment, measured as already stated by the first six months of the infection, the average patient will have received hardly less than eight, and not uncommonly twelve full dose administrations, or sometimes even a larger number.

There is no blind rule for a certain number of doses, but the simple principle of observation of the patient's general condition and specific disease at stake in this method.

Another point in the treatment of syphilis is, Shall mercurial measures be combined with the neo-

in the period of mercurial saturation, if one may use such a figurative term, the deaths from salvarsan should have been very numerous from this cause. This was not the case, inasmuch as the deaths which did occur at that special period of study of this drug were due to direct overdose, to faulty technic, to incorrect selection of patient, and last if not most important, the use of wood alcohol in the preliminary preparation. In the author's public and private practice it is now the rule to give a suitable dose of neosalvarsan on one day, test the urine on the following day, and if there is no contraindication, mercury is given, sometimes by mouth but usually by intramuscular injection, on the fourth day. Both drugs are employed up to the measure furnished by the patient himself in his reaction. At the end of the week the same cycle is repeated, or if the neosalvarsan cannot be given at seven day intervals, then on the seventh day and again on the eleventh day the mercury is repeated, if the needle is being used, or is exhibited daily if the internal preparations have been selected. Next on the fourteenth, twenty-first, or twenty-eighth day the arsenical compound is used entirely in accordance with indications, and the mercury is accepted to fill in the gap and to continue treatment with unbroken regularity. The one or two weekly interval for the neosalvarsan is preferred when financially and physically possible for the patient.

The following easy technic for administering the neosalvarsan speaks for itself. The only supplies are a twenty c. c. Record syringe with a set of three slip joint needles of large, medium, and small calibre, about two and a half inches long, tincture of green soap, alcohol, tincture of iodine, cotton or gauze swabs, sterilized towels, eighteen inches of rubber tubing for a tourniquet, and adhesive plaster or bandage. Formaldehyde vapor is a good means of sterilizing the syringe and its box, whose cover is used as the container for mixing the medicine. Into it is run nineteen c. c. of warm freshly distilled water at about blood temperature, and the ampoule is opened and the drug sprinkled into the water. While solution is occurring, the patient's arm is washed with the soap, alcohol, and iodine combination, or the alcohol alone, if efficiently used, is satisfactory. The medicine is then drawn into the syringe, air bubbles are expelled, the tourniquet is applied at the mid upper arm, while the patient closes his fist and the towels are spread under and around the field. As soon as a vein has become prominent, a needle proportional with its size is plunged into it, and as soon as a flow of blood appears, it is gently advanced for another cm. with the twofold purpose of avoiding withdrawal when the syringe is assembled to it and leakage owing to insufficient penetration. The mixture is injected very slowly if the needle is fine, or in spurts of about 0.33 c. c. with as many seconds of rest between the spurts. By both the slow and the interrupted administration the blood stream washes the medicine along and mixes with it, so that at no time is there a concentrated solution in the vein, and thus phlebitis is avoided.

Allusion has been made to the intramuscular injection of mercury. The author's technic is as follows, and unless each step is taken exactly as



FIG. 2.—Instruments for intramuscular administration of salicylate of mercury. From left to right are: Gauze sponges, green soap, alcohol, cotton toothpick swabs, tincture of iodine, 66.6 per cent. suspension of salicylate of mercury, the author's c. c. syringe, and dressing with adhesive plaster.

salvarsan or the salvarsan? The writer's own practice is affirmative on the following ground. For years prior to the discovery and publication of the newer arsenical preparations, the writer always gave arsenic in the form of Fowler's solution or arsenous acid up to the patient's tolerance in combination with the mercury for periods varying in duration and interval each year, or as a substitute for the mercury when there were indications that the latter was not being well borne. No disadvantageous result was ever seen, and no greater susceptibility to the arsenic was ever noted; quite on the contrary, the patient seems to do better with the arsenic than without it. Recently Wechselsmann has brought out a paper tending to establish the fact that the fatalities in salvarsan are more or less induced by the administration of mercury at the same time. It seems difficult to admit this proposition because if it were true, then mercury administered with arsenic in any form or for any purpose would add to the toxicity of the latter, and again because if it were true then in the early days of salvarsan which followed the universal administration of mercury and, therefore,

described, difficulty if not dissatisfaction may ensue and the method be undeservedly blamed. A 66.66 per cent. suspension of *precipitated* salicylate of mercury in sterile alboline is employed, which means that one c. c. administers ten grains and 0.1 c. c. one grain, or about fifteen minims contain ten grains, and one and a half minim one grain. Thorough warming and shaking of this suspension before administration are necessary and then a needle (No. 18) two and one half inches long, is driven into the buttock in depth according to the thickness of the muscles, while the patient stands on the opposite leg and hangs that limb free which is to receive the dose. The medicine is not injected at one point where it would make a roundish solid deposit, but at several points as the needle is slowly withdrawn for say, 1.5 cm. This produces a line and not a ball of medicine and greatly reduces the pain. The patient must not hold his muscle hard, otherwise the medicine will be expressed into the fat and cause a node. The skin should always be sterilized with tincture of green soap, alcohol, and iodine, and the needles boiled from patient to patient. The author's syringe is most serviceable for this work; it contains exactly one c. c. with graduations on the shaft of the plunger in tenths.

If the internal administration of mercury is necessary for the occasional patient who cannot tolerate the injections, then the so called "tonic dose" is determined by the method now so old as to be familiar to all and to require only mention. If the inunction method must be selected, then the method devised in Europe in the last generation and taught in this country by such authorities as the late R. W. Taylor, is preferred; it consists in rubbing in the appropriate dose in eleven different portions of the body, changing the portion every night in order to avoid irritation of the skin, and permitting a period of rest between every two excursions over the entire skin. While very efficient the average patient who cannot afford a professional masseur, finds the inunctions laborious, dirty, and often discouraging.

In modern syphilology the Wassermann test in all its aspects requires careful consideration. The question arises, Where in the diagnosis of syphilis does the complement test of Wassermann belong? In the early study of the Wassermann and Noguchi reactions which the writer¹ carried on at the House of Relief and the New York Hospital, by sending numerous bloods to Doctor Noguchi, it was clearly shown that these manifestations in the blood are rather slowly developed and do not often appear prior to the third or fourth week. These findings are consonant with exactly similar work which preceded and followed this contribution, so that it may be stated with reasonable certainty that the complement fixation test of Wassermann is not a diagnostic aid before the second week and not uncommonly before nearly double this interval. On this account, therefore, it cannot be a factor in the early diagnosis of syphilis when compared with proper examination for *Treponema pallidum*. Unfortunately for the exactitude of diagnosis, it is regularly present in leprosy and yaws and not rarely occurs in cancer and malaria, and is even occasional

in scarlet fever. Including syphilis, therefore, there are at least six pathological states which respond to this reaction. It is a valid question to raise whether or not it may be present normally in some individuals, and independent of known antecedent disease. Not a few persons possess natural amboceptor—a fact which might be regarded as at least slightly indicative of this fact. In the absence, therefore, of a reasonable history of syphilis and of suitable response to treatment, it is probable that a positive Wassermann reaction should be accepted not without some caution. This is exemplified by the variations in reports on the same blood at the same time from different laboratories which will differ in their symbols for expressing the degrees of positive reaction and even for showing the presence or absence of it. Likewise, one laboratory will have a large number of positive reactions and others of doubtful or negative results. One pathologist will believe that the reaction is either negative or positive with disregard to the accepted degrees of positive response; and another by the principle of dilution, will endeavor to create a quantitative estimation of the positive. While it is not the purpose of the author to challenge the great value of the Wassermann reaction, it is a fixed opinion in his mind, however, that we have been guilty of exaggerating this value and that we will, in the next five years, be far more judicial in our attitude toward it than in the last five years. In the presence of a history of syphilis, the Wassermann reaction is probably of great service.

The next question concerning the Wassermann blood test is, Of what value is it in guiding and determining treatment? We should here assume at least a reasonable—better, an absolute—diagnosis. The safest attitude in this matter is to regard the condition of the blood exactly as we regard clinical symptoms—in other words to realize that the disappearance of a clinical symptom under treatment does not mean cure, and in exact parallel the change of a positive to a negative complement fixation test does not mean cure, only a quiescence of the infection, speaking in the most general terms. The writer, therefore, thinks it is a very great mistake to do, as not a small number of practitioners seem ready to do, *i. e.*, to give a short energetic course of treatment, produce a negative test, stop treatment, and then see whether the negative reaction persists. Of course, it will not persist, but will relapse to a positive of one or another degree exactly as will the clinical signs if the delay is sufficient. This policy appeals to the writer as fallacious as that in the past which prescribed two excursions



FIG. 3. — Author's c. c. syringe, showing pedestal head, shaft of piston graduated to read in tenths of a c. c., barrel of exactly one c. c. capacity, and two and one half inch needle.

¹ V. C. Pedersen, Serodiagnostics of Syphilis, this JOURNAL for May 7, 11, and 28, 1910.

over the body in the inunction treatment, a rest, and then a repetition, until a small total sometimes as few as six courses of rubbings produced a so called cure. Our insane asylums tell the story of what has resulted, and clinics contain the otherwise incapacitated victims of this insufficient treatment—all based on hasty conclusion through the early disappearance of symptoms, known now to be only temporary manifestations unless the treatment is continuous. One may look at this question of the Wassermann reaction exactly as though it were an external clinical manifestation, and, in the writer's opinion, it is best to make the endeavor to secure a negative reaction with the utmost promptness and energy and then never to allow it to return to a positive. This means that all cessation of treatment should not be indulged in, but rather that the consistent course of management should be followed. Then by reasonably frequent blood tests, proof should be obtained that the negative reaction has remained and is remaining unaltered. This plan only duplicates that by which modern experts do not permit the slightest clinical sign to show itself.

The patient requires treatment as well as the disease, and it is almost safe to say that in some cases more than the disease. It is, therefore, requisite that management not unlike that applied to the victims of tuberculosis be selected with its fresh air, full feeding, tonics, and similar means. A part of this detail includes the taking of the patient's weight and blood for anemia at regular intervals—every month is a good rule.

The duration of treatment is somewhat a matter of opinion, but the accepted limit among the majority of authorities is three years; during the last two of these the iodides are associated with the other treatments and many patients can do better throughout their disease if mild alkalies, like Vichy water or the bicarbonate of sodium are taken more or less regularly. The writer has endeavored in his hospital practice to trace the average treatment in relapsed cases, and has found as follows: Patients who have had three years of adequate regular treatment and support scarcely ever relapse, and to this class belong many of those who have had two years of care, rather energetic in type. When the limit, however, is within two years, the relapses become more and more inevitable the shorter the period. Following this limit of three years, in private practice there should be another period of two or three years, during which the Wassermann reaction is taken every three or four months. Cases in which it remains negative are the hopeful ones, while those in whom it returns to positive may be looked on as about to have a relapse, but at least two laboratories should corroborate the findings or one laboratory agree with itself as to separate specimens. In this sense the Wassermann test may be looked on as the early forerunner of a return of clinical symptoms and become a valued guide in preventing a relapse.

It is difficult to estimate the relative importance between relapses which occur during the first two years, and those which are seen even very many years later. The earlier the relapse, very likely the more important it is in its relation with the inten-

sity of the infection, while the later the relapse the greater its significance as to the chronicity and incurability of the case. In other words, it is thinkable that a patient with an early relapse may be fully cured in the end, but that one with a late relapse will occupy an entirely different status.

Syphilis is, as we know, a disease of wide variation, from relatively benign to vicious and directly deadly. Unfortunately, while we know how it begins, no one may foresee how a given case will end. It is, therefore, fitting that every case be treated with the most consistent judgment, energy, and persistence. At the outset the patient should receive printed instructions as to the general significance of his affliction.

This paper was necessarily made brief and only suggestive of those elements of the subject which will command interest and stimulate discussion. It is hoped that at least this purpose has been reasonably fulfilled.

45 WEST NINTH STREET.

DIAPHRAGMATIC HERNIA OF STOMACH AND OMENTUM.*

Report of a Congenital Case in an Adult with the Sac and Its Contents Passing Over into the Right Thoracic Cavity.

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By diaphragmatic hernia we understand a protrusion of one or more of the abdominal viscera into the thoracic cavity. Diaphragmatic herniæ are either congenital or acquired. On account of traumatism, it is natural that we see more of the latter than of the former. Owing to the anatomical position of the liver, diaphragmatic herniæ are encountered more often on the left than on the right side. This can be explained by the fact that the liver, lying in close apposition to the diaphragm, shields any defect that may exist in this region and at the same time acts as a barrier to any undue pressure from below, which might force some of the abdominal viscera through any weakened area in this part of the muscular apparatus.

Furthermore, from its anatomical construction, the right half of the diaphragm is stronger than the left half because the openings for the aorta, inferior vena cava, and esophagus, situated in the left side, interrupt the continuity of the muscular fibres, thereby weakening its structure and offering less resistance to pressure.

There are certain regions of the diaphragm where, on account of the anatomical structure, hernia is more apt to occur than in other sections. These are not, as might be expected, the natural openings such

*Read in part, with presentation of the specimen, at the surgical section of the New York Academy of Medicine, May, 1914, and at the seventh annual meeting of the American Gastro-Enterological Association, Atlantic City, N. J., June, 1914.

as the esophageal and caval orifices, but several areas situated as follows: 1. Larrey's space or foramen Morgagni,—a triangular area between the pars sternalis and the pars costalis. 2. The foramen Bochdaleki, a space on either side between the pars vertebralis and pars costalis. This is the usual site

small hernial protrusion to develop gradually or suddenly at these places. If the abdominal pressure is not too great to tear the peritoneum, a true hernia is formed. On the other hand, should the peritoneum be torn, we should then, as mentioned above, have no true hernia, but a false one, because there is no intact peritoneal covering. A hernia of congenital origin may or may not have a sac.

According to the causes, the effects of such herniæ differ. Sudden death may follow immediately or shortly after, from acute cardiac incompetency, while cases have been observed that have existed for years without noteworthy inconvenience. As regards the contents of such herniæ, we find most frequently stomach, colon, spleen, or omentum.

Subjective symptoms are often wanting. Patients may have suffered only from mild attacks of indigestion, borborygmi, or a feeling of discomfort, until they are suddenly attacked with cardiac failure from sudden overdilatation of a herniated stomach; or, again, patients may be seized with symptoms of strangulation of some hollow viscus.

The diagnosis is not readily established. Of late years, our diagnostic acumen in regard to abdominal and thoracic conditions has greatly increased, yet we must acknowledge that even with the aid of the x ray, the diagnosis of diaphragmatic hernia may be quite difficult. A history of an injury months or years previously may reveal a predisposing cause and help to interpret the symptoms.

True congenital diaphragmatic hernia of the

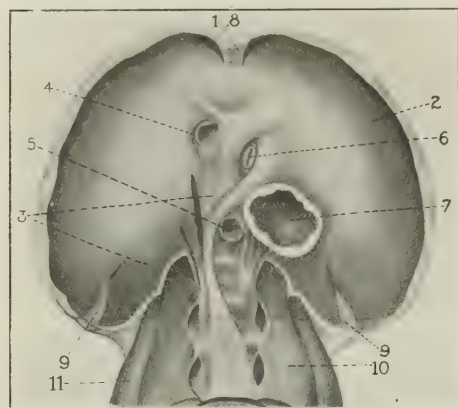


FIG. 1.—Diagrammatic drawing of the esophagus illustrating its principal openings and muscular parts: 1, Pars sternalis; 2, pars costalis; 3, pars lumbalis; 4, inferior vena cava; 5, aorta; 6, esophagus; 7, hernial opening; 8, foramina of Morgagni; 9, foramina of Bochdalek; 10, psoas magnus; 11, quadratus lumborum.

because embryologically the posterior portion of the diaphragm is the last to form.¹ In this fact is probably to be found an explanation why congenital diaphragmatic herniæ are most frequently found in this region. 3. The opening through which the sympathetic nerve passes. 4. At the hiatus œsophagi where the surrounding musculature of the diaphragm is loosely attached to the esophagus.

The reason that some of these sites offer a weakened barrier to the organs of the chest and abdomen contiguous to them, is that these areas or spaces are sometimes made up only of areolar tissue and covered only by peritoneum on one side and pleura on the other, so that at these gaps the abdominal and thoracic cavities are merely separated by a thin layer of tissue. These weak barriers offer little resistance, therefore, to pressure of the organs of the chest and abdomen with each respiratory excursion.

These anatomical and physiological considerations seem to explain the formation of diaphragmatic hernia in later life. When we come to study the etiology of the acute acquired forms, we find they are usually the result of some severe traumatism, such as a fall from a great height or severe compression of the thorax whereby a tear in one of the above mentioned areas ensues, or are the result of a bullet or stab wound which has penetrated the diaphragm. In all such cases the peritoneal lining of the diaphragm may be torn at the same time. If torn, the hernia not having a peritoneal sac intact, is strictly speaking not a true hernia.

In consequence of the above mentioned weak areas, severe attacks of vomiting, strong labor pains, or violent coughing spells and strains may cause a



FIG. 2. H. G. Congenital diaphragmatic hernia, December 30, 1913. Chest plate in the upright position. Note the characteristic "oblique white line" of the stomach, pointed out particularly by Griffin. This is on the right side of this patient, and extends upward and inward from the eighth rib to the pericardium. The lung shadow shows through the stomach "gas bubble" seen beneath this line. A second stomach gas bubble appears beneath the left line of the diaphragm, which is normal, while the right line is not to be distinguished.

stomach in an adult is comparatively rare—a true diaphragmatic hernia of the stomach and omentum prolapsed from the left into the right thoracic cavity, is very unusual and, as far as the literature has

¹Latent and Laricot, *Bibliothèque Anatomie*, xxiv, p. 322, 1908.

been perused, must be regarded as unique, and picturing the topography of the normal anatomical relations of the stomach, liver, and diaphragm, it seems almost improbable that such an anomalous position of the stomach could exist in a living adult person,



FIG. 3. H. G. Congenital diaphragmatic hernia, December 30, 1913. Plate taken a few minutes after the bismuth meal. Note two divisions of the stomach, an upper smaller one on the right side emptying into a lower larger one, which occupies the usual site of the stomach. There is a narrow connecting link between the two portions. The liver is tilted and its lower pole is pushed down below the crest of the ilium. Small particles of bismuth are seen scattered through the picture, pointing to a rapid emptying of the small gut.

without giving more symptoms of distress. The good fortune to have observed and studied this unique condition has prompted this presentation.

CASE. H. G., male, aged fifty-four years, public accountant, was first seen in December, 1913. His family history was negative; he had always led a quiet regular life, had no tobacco or alcohol habits, and for many years avoided strains on account of a right inguinal hernia. Thirty years ago he was severely ill for three months in Texas with dysentery; otherwise he was very well until the onset of his present illness.

This began two years ago, when, in the late afternoon, while in his office and without any assignable cause, he experienced a pain across his upper abdomen, mild at first, but persisting and gradually associated with a feeling of abdominal distension. He was able, however, to go to the home of a friend. There was no nausea, chill, vomiting, nor dyspnea, but he felt very weak and had drawn face and cold extremities. A physician was called, diagnosed the condition as one of "spoiled" stomach and administered a hypodermic injection of morphine. His symptoms were greatly relieved in about a quarter of an hour, so that he was able to go home. He vomited once about 9 p. m. The next day he remained in bed and another physician called in, found a much distended abdomen. He resumed business the second day, but for four or five weeks occasionally had sharp pains across the epigastrium, which were relieved by a hot water bag. Early in December, 1913, he had a similar but much milder attack, which was also relieved by a hot water bag.

Since the attack of two years ago, he has had frequent attacks of nausea and belching, beginning usually in the late afternoon, often preventing the eating of his supper and gradually, as the hours passed, getting more severe and relieved only by repeated forced vomiting. The vomitus at first consisted only of a little mucus, then increasing amounts of very sour tasting whitish or yellowish

fluid, up to two quarts or more, never, however, containing any food. Often he would be kept awake all night and then would be too exhausted to get up, but seldom missed more than one day from business. These attacks had no definite relation to the quantity or quality of his food; they occurred at first about every two months, but since two or three months about once a week. During the intervals between the attacks, he had no indigestion whatever. In the last two years he lost about thirty-five pounds; his strength and appetite were also much diminished, and a moderate degree of sitophobia had developed.

Physical examination. Patient was an intelligent, quiet, and self controlled tall man of large frame, who appeared to be very ill. The skin and mucous membranes were very pale, the cheeks sunken, the musculature poor and adipose tissue scant, and there was an impression of much fatigue. Aside from a right sided inguinal hernia, the general examination showed nothing of importance. Systolic blood pressure 145, the diastolic 90.

Repeated examinations of the chest, even after the roentgenological examination had given evidence of the real condition present, failed to show a displacement of the heart or the presence of any of the adventitious percussion or auscultatory sounds over the lower right lung area pointed out by Leichtenstern,² Hirsch,³ Eppinger,⁴ and other writers, as diagnostic of diaphragmatic hernia.

The abdominal walls were soft; in the erect position there was a rather pronounced bulging of the lower portion. There was no visible or palpable peristalsis. On several occasions there was point tenderness to deep pressure slightly above and three fingers' breadth to the right of the umbilicus. The liver border could be felt, thin, sharp, of normal consistence, and traceable at an angle of 60°, from the right epigastrium down through the right lumbar region to the iliac crest. The upper border of liver dullness in the right mammary line was behind the seventh rib. Upon percussion after inflation, the greater curvature of the stomach appeared to be two fingers' breadth above the



FIG. 4.—H. G. Congenital diaphragmatic hernia, December 30, 1913. Plate taken twenty minutes after the bismuth meal. Note further emptying of upper right sided portion of stomach into lower one, which descends as it fills, while the liver rises as upper portion empties.

umbilicus. Digital and proctoscopic examinations proved negative. The urine and stools, too, showed nothing pathological upon repeated examination.

Two Einhorn thread tests were made; the first thread was vomited after a few hours, the second, though easily

²Leichtenstern, *Berliner klin. Wochenschrift*, 40, 1874.

³Hirsch, *Munch. med. Wochenschrift*, p. 996, 1905.

⁴Eppinger, *loc. cit.*

swallowed to 80 cm., was found half out in the morning. Neither one showed any blood stains. Two double stomach tests were made, one at the office and the other later in bed at the hospital. The patient took the tube without difficulty. In each instance the patient took a test supper which included four or five tablespoonfuls of half cooked whole barley and two or three slices of roasted chicken



FIG. 5.—H. G. Congenital diaphragmatic hernia, December 30, 1913. Plate taken one hour after the bismuth meal. Note the empty upper portion which shows traces of the bismuth meal, stomach "gas bubble" and "oblique white line"; the lower portion is full and descended further, while the liver shadow has ascended. The lower portion shows the usual three layer formation.

breast and a slice or two of buttered white bread. The next morning the fasting contents of the stomach were obtained by aspiration and lavage. Thereupon, an Ewald-Boas test breakfast was taken, and after the usual hour's time, the stomach contents were again obtained by aspiration and subsequent lavage. For the aspiration a ten ounce modified Pollitzer bag was used. The first fasting test yielded only three c. c. of a colorless fluid with a free acid content of 6.7 and a total acidity of 20; the second fasting test yielded no stomach contents at all. After each test breakfast only thirty c. c. of stomach contents were obtainable, of which the solids (food rests) equalled only four c. c. The analysis of these showed free acid 44 and 46, and total acidity 60 and 63, respectively. There was no lactic acid nor other pathological factors. The absence of more than the above mentioned contents was demonstrated in all four instances by the subsequent lavage.

The *röntgenological* study of the case was made by Dr. Charles Gottlieb of this city. It included fluoroscopic examinations as well as single and serial *röntgenograms*. The patient was examined on different days, both before and after bismuth meals. The conditions found are well shown by the accompanying photographic reproductions (Figs. 1 and 2), which show conditions that were also well seen on the fluoroscopic screen before and immediately after the bismuth meal was taken. The rest of the pictures are from a serial study and their special features are explained in the accompanying legends.

The radiographic findings were of such an unusual nature that neither Doctor Gottlieb nor Dr. William H. Stewart, who also saw the plates, would commit himself to a definite diagnosis. That the true conditions present were suspected is shown by the following extracts from Doctor Gottlieb's reports. In the first one of December 31, 1913, he stated: "We are dealing with a very unusual and interesting type of stomach—an hourglass. Whether the smaller upper right hand portion has displaced the liver downward, whether we have a diaphragmatic hernia and what the cause of the hourglass or division of the stomach into

two sections is, can only be learned from continued study." On January 6, 1914, he concluded "that the stomach is of the hourglass type, that the smaller portion pushes the liver down and causes either a true or a pseudodiaphragmatic hernia. The stomach is too anomalous to make definite statements."

During the brief period of the observations, the patient's condition became most urgent. He vomited more frequently and lost steadily in appetite, weight, and strength. As his condition was clearly not amenable to internal therapy, he was admitted to the Lebanon Hospital and referred to Doctor Kakels for operation.

The operation was in the nature of an exploratory laparotomy for the peculiar gastric disturbances and was performed at the Lebanon Hospital, February 26, 1914. On opening the peritoneal cavity, the greatly distended transverse colon covered with enlarged vessels presented itself, occupying the region of the stomach. On pulling this out of the way, the gastrocolic omentum and the whole of the great omentum were pulled down and the pyloric end of the stomach was all that was seen emerging from an opening high up in the diaphragm on the left side and behind the liver near the left crus, between the *pars vertebralis* and the *pars costalis* (Fig. 1). The rest of the stomach with the whole of the great omentum was in the thoracic cavity, outside of and behind the pericardium. After having withdrawn the omentum and the enormously enlarged stomach (three times its natural size), the entire hand was readily introduced into the opening, which was

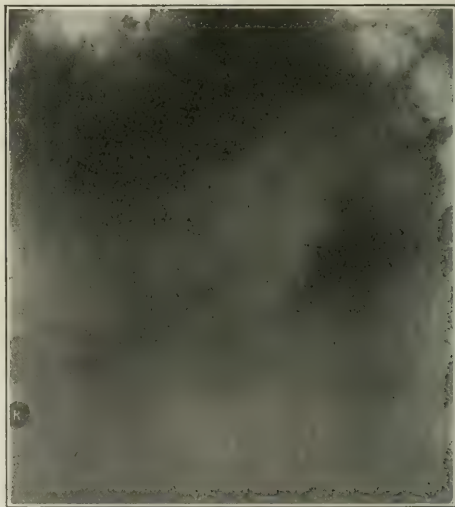


FIG. 6.—H. G. Congenital diaphragmatic hernia, December 30, 1913. Plate taken seven hours after the bismuth meal. Note considerable residue still in the stomach; head of the bismuth column has advanced to the transverse colon. Many loops of the ileum are still filled with bismuth.

found to extend upward and inward into the right thoracic cavity, through the posterior mediastinum. The heart could be felt distinctly in front of the cavity. The greatly distended and enlarged stomach had a distinct constriction about it near the pyloric end, resembling an hourglass stomach. The stomach had to be pulled from the thorax with con-

siderable force, and when released receded to its abnormal position. With the hand in the opening one could feel the contraction of the diaphragm with each inspiration and expiration. The reduction of the hernia on account of the negative pressure above the diaphragm was unsuccessful.

The large hiatus in the diaphragm precluded the possibility of closing the defect from below.⁵ The dome of the diaphragm was so high and out of reach, that no attempt at suturing the stomach to the margins of the opening was made, as working with the sense of touch only seemed hazardous, especially in a region rich in important nerves and vessels.⁶ Furthermore, the condition of the patient did not permit of extensive operative procedures, such as resection of ribs and approaching the hernia from the thoracic side, consequently the abdomen had to be hurriedly closed. The radical cure of this large hernia seemed hopeless.

There was a great deal of shock following the manipulations, probably due to disturbance of the vagi; the pulse rapidly increased to 160, and the patient succumbed thirty-six hours later. At the autopsy no pleurisy, pneumonia, nor peritonitis was found. There was no omentum nor stomach in the abdomen except the pyloric end protruding from an opening in the diaphragm. The sac containing the stomach and great omentum was found in the right thoracic cavity reaching as high as the second rib. The hernial sac was made up of peritoneum, lining the under surface of the diaphragm and the parietal pleura of the thoracic cavity.

One must presume, when taking all the facts into consideration in this interesting case, that the hernia was produced gradually by the stomach forcing its way through the congenitally weak area in the diaphragm and that the positive abdominal pressure below and negative chest pressure above, forced the viscus further up and inward to the right through the posterior mediastinum, carrying with it the omentum and pushing before it the parietal pleura until it came to lodge in the right thoracic cavity, a most unusual situation.

The clinical symptoms, physical signs, and radiographic findings of a diaphragmatic hernia in this instance were quite clear, in the light of what we discovered at the operation, yet were not positively interpreted before operative interference, because of lack of familiarity with them. There was no history of severe trauma, nor any scar visible from which the existence of rupture of the diaphragm could be suspected. The history and subjective symptoms were those of indefinite gastric complaints with dyspnea, rather unusual in the face of such a grave condition.

It is not intended to enter into a detailed discussion of the subject of diaphragmatic hernia, but a few general remarks bearing more directly upon the case herewith reported, will not be amiss.

Diaphragmatic herniae are classified anatomically as true and false, and etiologically, as congenital and acquired (traumatic). The true herniae, as elsewhere, are invested with a sac, in this variety, peritoneum and pleura. The false herniae have no sac

and, strictly speaking, are visceral eventrations, i. e., protrusions of viscera outside of the abdominal cavity. Both varieties may be either congenital or acquired; the latter being either acute or chronic. As it is generally impossible to differentiate between a congenital and a chronic traumatic diaphragmatic hernia, the simplest and best classification appears to be that of Hans Eppinger,⁷ viz: to regard as acquired only those herniae in which there is a definite history of a traumatism (fall, crushing accident, penetrating wound, etc.), and to class all the other kind as congenital. The latter arise through embryological defects of the diaphragm, such as arrested development of a portion, excessive size of the natural foramina, weakness of the muscular layers, etc. Owing to the negative pressure within the chest and the positive abdominal pressure, we find the abdominal organs passing into the chest and not the thoracic organs into the abdomen. While the large majority of reported congenital cases have been discovered before the first year of life, a number of even very extensive ones have gone on symptomless for years and were only discovered as operative or post mortem surprises.

A study of the literature soon convinces that the occurrence of diaphragmatic hernia is not as rare as might be assumed from individual experience. Dreyfuss,⁸ in 1829, reported fifty-five cases from the literature; Bowditch⁹ in 1853, published an analytical study of eighty-eight cases, including two that had been reported in 1610 by Ambroise Paré, Lacher,¹⁰ in 1880, was able to tabulate 433 cases. More recently Giffin,¹¹ in 1912, found that about 650 cases had been reported in the literature, only fifteen of which, however, had been diagnosed during life. Of the 635 cases tabulated in Hans Eppinger's extensive monograph,¹² 580 were left sided and fifty-five right sided hernias, a proportion of 10.5 to one.

Lacher¹³ states that every abdominal organ, excepting the genitals, bladder, and rectum, has been found at least once within the thoracic cavity. The stomach is the organ most frequently found. With the exception of a few herniae of the costosternal space, the abdominal organs in all cases reported have been found in the same side of the chest as that of the diaphragmatic opening. As far as the writers have been able to learn, no such displacement as occurred in the present case has ever been reported.

According to the above mentioned classification of Eppinger, this case is one of true congenital diaphragmatic hernia. Aside from the x ray findings, there is nothing in the history or the clinical signs of this case to suggest the presence of a diaphragmatic hernia. As already stated, the patient had always led a quiet, inactive, almost sedentary life, particularly avoiding physical strains because of his inguinal hernia. The initial attack of two years ago, occurring as it did in the midst of good health and manifesting itself as a sudden and gradually increasing pain across the upper abdomen, with a feeling

⁷Eppinger, *Allgemeine und spezielle Pathologie des Zwerchfels*, Supplementary volume to *Nothnagel's Spezielle Pathologie und Therapie*, 1911.

⁸Dreyfuss und Autenrieth, *Abhandl. über Brüche d. Zwerchfels in Beziehung auf gerichtl. Arzneykunde*, 1829.

⁹Bowditch, H. J., *Treatise on Diaphragmatic Hernia*, 1853.

¹⁰Lacher, *Deutsches Arch. f. klin. Med.*, p. 188, xxvii, 1880.

¹¹Giffin, *Annals of Surgery*, p. 108, March, 1912.

¹²Eppinger, *Loc. cit.*

¹³Lacher, *Loc. cit.*

⁵Seudder, *Annals of Surgery*, 1912, p. 358, reports the successful cure of a nontraumatic case by this means.

⁶Beckman, *Surgery, Gynecology, and Obstetrics*, ix, p. 154, 1909, describes two cases cured in this way in the Mayo clinic.

of abdominal distention and a condition of mild shock, as expressed by weakness, drawn face and hands, coldness of the extremities and finally the occurrence of nausea and vomiting, was very suggestive of the perforation of an ulcer rather than anything else. In view, however, of the comparative mildness of the manifestations and their rapid subsidence after the morphine injection, such a perforation could only have been at most a pinhole one. The physician who attended him during his attack contented himself with the usual diagnosis of "spoilt" stomach, but his family physician, who saw him the next day and had the opportunity of observing the patient until he came to us, was of the decided opinion that the case was one of chronic gastric or duodenal ulcer. Tests were not made, but the further course, as detailed above, appeared to justify that diagnosis. The more recent loss in appetite, weight, and strength, finally awakened the suspicion of a malignant growth.

The history of the case of course was not at all typical of ulcer, but still less so, on the other hand, was it of the real condition, diaphragmatic hernia. Aside from the character of the initial attack and the milder but similar one in December, 1913, the diagnosis of chronic ulcer was favored by the sharp epigastric pains which appeared daily for several weeks after the first attack, and by the later and increasing periodical attacks of gastric distress, nausea, and protracted vomiting of sour gastric secretion (gastrosuccorrea, etc.). Even marked loss in weight in chronic ulcer is by no means unusual under such conditions. Objectively, however, there was nothing to substantiate the diagnosis of ulcer excepting the repeated localized deep point tenderness above and to the right of the umbilicus. The test meal examinations showed no excessive acidity nor secretion, no blood and apparently no impairment of motility. We shall refer again shortly to this last point. Neither the thread tests nor the feces showed blood.

The periodical vomiting of large amounts of gastric secretion was suggestive of a spinal or a cerebral condition. Repeated and careful examinations showed no other signs of central nervous disease and there was no reason to suspect syphilis. The retention of only forty cm. of silk thread in the morning, after eighty had been readily swallowed the previous evening, and the absence of any bile stain to show that the bucket had gone near or beyond the pylorus, can be well interpreted *post hoc*, and would have suggested the presence of an obstruction in the stomach if sufficient dependence could have been placed upon this finding.

The results of the test meal examinations bring up an important point for consideration, viz., how much reliance may be placed upon test meal extraction, even with subsequent lavage, to determine the motor sufficiency of the stomach. The importance of this point becomes apparent when we remember that all the well known clinical tests (Leube and Boas meals, Mathieu and Rémond's test, Boas's chlorophyl, etc.) are based upon the recovery of residual contents by lavage at a definite period of time after the ingestion of a test meal. Normally one hour after an Ewald-Boas test breakfast, thirty to 100 c. c. of solid contents (food remains) should be

obtained by aspiration and lavage. In two carefully carried out tests in our case after one hour only, thirty c. c. total contents, of which but four c. c. were solids, were each time obtainable by aspiration, while the subsequent lavage apparently proved that no more was in the stomach. That this conclusion was entirely erroneous is readily understood from the revelations of the radiographic, operative, and autopsy findings. For the stomach was of the hourglass type, and the residual meal after one hour was obtained from one segment only, the major portion having passed into the other one. Since we know that there was no stricture from structural changes in the wall of the stomach, we must conclude that the resistance to the passage of the stomach tube through a constriction which permitted the rapid passage of food was due either to a contraction of the diaphragm excited by the presence of the tube such as was felt at the operation, or, what is more likely, through an angulation of the stomach in its passage through the diaphragmatic opening. Had it been possible to advance the tube further into the stomach, very probably a second flow of the test meal residue would have resulted. This classical sign of hourglass stomach, so often dwelt upon in textbooks, yet so rarely observed in actual practice, would certainly have aroused our suspicion.

From the experience gained with this case the suggestion is offered that where a motility test indicates rapid expulsion of contents from the stomach, the fact must never be lost sight of that we may be dealing with an hourglass contraction, and are after all testing only one segment of the stomach. This point, we believe, has never before been emphasized.

All the radiographs give conditions as viewed from the front of the patient.

35 EAST SIXTY-FIRST STREET.

142 WEST EIGHTY-FIFTH STREET.

X RAY PREVENTION OF NASAL DISEASES:

X Ray Examination at the Age of Five or Six Years as a Prophylactic against Spurs and Deviations of the Septum and Disorders of the Tonsils, Adenoids, and Accessory Pneumatic Sinuses.

BY SINCLAIR TOUSEY, A. M., M. D.,
New York.

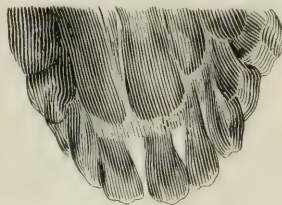
It often happens that a set of permanent teeth develop in a jaw which is not nearly wide enough to accommodate them. The most obvious result is that the permanent teeth are variously malpositioned and delayed in eruption. But of more vital consequence is the interference with the development of the superior maxillary bones. The hard palate has a narrower base than natural and is bent up into an unnaturally high arch. This presses up the nasal septum, then in a cartilaginous or formative state, and crumples it into spurs and deviations, which in later life are bony and cause a train of symptoms and operations. The young child has mouth breathing not entirely relieved by surgical treatment of the adenoids and hy-

pertrophied tonsils, because the latter disorders are the result of the mouth breathing, not its cause. X ray examination at the age of five or six years enables one accurately to measure the size of the on coming permanent teeth and to determine before-

ured $38/100$, $29/100$, and $33/100$ inch respectively. It follows that actual measurement of the temporary affords no guide to the size of the permanent teeth.

My work has also shown that the temporary curve as recorded upon a sheet of wax with the marks of the temporary bite upon it, like Fig. 3, is reproduced in the permanent curve, whether right or wrong for the permanent teeth. Nature does not spontaneously correct a contracted dental arch any more than a harelip or a cleft palate. It is especially important to note that a set of fine little temporary teeth arranged in a regular curve perfectly adapted to them, may be followed by extra large teeth

which Nature will try to force into the same curve. Such a case is illustrated in Fig. 4; where the x ray warning was disregarded; not one particle of change in the radius of the curve has taken place;



FIGS. 1 and 2.—Radiographs of the permanent teeth before eruption. The width may be determined within 1/100 inch.

hand the curvature of the jaw required for their natural development.

With this information it is an easy and painless matter for the dentist to regulate the temporary teeth to such a curve as is required to guide the natural development of the permanent teeth. The calculation of the proper curve is part of the work of the radiographer, but the orthodontist will take into consideration, not only the size that he is told the permanent teeth are to have, but also the type of face in which these teeth are to develop. The x ray measurement will frequently show that nature has provided the proper curve, and this knowledge may save the child from harmful efforts to do it good by regulating the temporary teeth when they do not require it.

My work in this direction covers a period of ten years, which has shown that the x ray measurements of the unerupted permanent teeth made from such radiographs as Figs. 1 and 2, are proved correct within $1/100$ inch when the same teeth are actually measured some years later after eruption. I have produced the patients and my original films at various dental societies where this fact has been established. It has also shown that there is no fixed

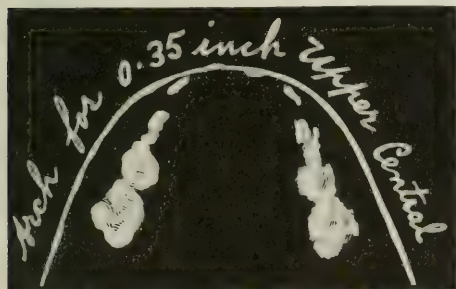


FIG. 3.—Temporary teeth arranged in curve corresponding to permanent upper central incisors 0.30 inch wide, while the x ray shows the latter are 0.35 inch wide. Comparison between the existent curve and what the temporary curve should be regulated to.

ratio between the size of the temporary and that of the permanent teeth. Thus of three children whose temporary upper central incisors were $25/100$ inch broad, the permanent upper central incisors meas-

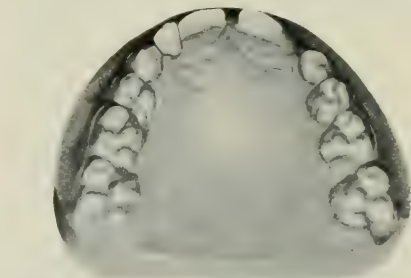


FIG. 4.—X ray warning disregarded; no spontaneous expansion, no resorption of one permanent upper lateral incisor; nasal operations have been required.

one of the permanent teeth has been unable to erupt; and the child's nasopharynx has been operated upon. Fig. 3 shows the actual temporary curve and what it should be to accommodate permanent teeth of the size determined by the x ray and verified later by actual measurement.

It would be rash to say that all intranasal malfor-

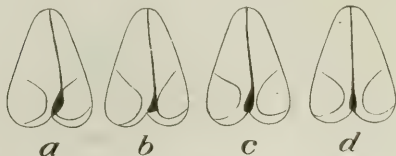


FIG. 5.—Deviations of the nasal septum in a young child straightened in a few weeks by regulation of the teeth. (Dental treatment by Dr. E. A. Bogue; nasal examinations and diagrams by Doctor Berens.)

mations are due to improper development of the teeth, but many certainly are. If taken in time these can be prevented or cured. Thus Dr. E. A. Bogue has had a rhinologist make a drawing of the septum, showing spurs and deviations, and another drawing showing a straight septum some time later after proper regulation of the teeth (Fig. 5).

A little patient whom I examined and found to

need expansion of the dental arch, was obliged to do without the appliances on account of an intercurrent attack of whooping cough. During this period not a particle of ground was lost. The motion of the teeth had been toward a natural, not a strained and unnatural position. The details by which an accurate radiographic measurement of the unerupted permanent teeth is secured form the matter of some of my more technical papers on the subject.¹

850 SEVENTH AVENUE.

EXTENSIVE CREEPING ERUPTION.*

By J. L. KIRBY-SMITH, M. D.,
Jacksonville, Fla.

The accompanying figures show a very unusual and extensive involvement of the skin by the so called "creeping eruption" or *Larva migrans*, due to the wandering around in the skin of a larval parasite; on account of the extensiveness of this case and the frequent occurrence of this dermatosis during the spring and summer months in Florida, the writer believes that the report of this case will be of interest to the profession.

Hasse (1) and Grossman (2) have both reported cases of creeping eruption in recent years, in which *Larva migrans* was found in the lesions. Pusey and Stelwagon, in their recent work on dermatology, review the literature on this interesting condition, and it is noted that in the past a number of parasites have been brought forward by different writers as causative of a creeping eruption of the skin; Pusey, in the 1911 edition of his dermatology, has the fol-

lowing description, "Under the name of creeping eruption, *Larva migrans*, hypnomyoderm (Kaposi), is described a rare lesion of the skin produced by the wandering in the skin of a larva which leaves behind an inflammatory tract. The condition was first described by Robert Lee in 1875 and 1884, then Croker in 1882, and since that time several cases have been published. The condition must be excessively rare in the United States, although Stelwagon refers to four cases which he has seen and cases have been observed by Van Halinenx, Shelmire, and others." During a four years' residence in the northeastern part of Florida near the Atlantic coast line, the writer has seen quite a number of cases of creeping eruption; case histories have been taken of thirty, but numerous attempts at the recovery of the parasite from the furrows in the skin have been without result.

Uncinari dermatitis or ground itch is very common over the southern States; this condition could not be confounded with the picture of creeping eruption, though the writer has had several cases of creeping eruption for treatment which the attending physician had diagnosed as ground itch. Before giving a brief history of the case herewith illustrated, attention is called to the fact that in all of the thirty cases recorded, the lesions were for the most part on the exposed surfaces, arms or legs; twenty-three of the cases were in school children who went without shoes or stockings. Only in three of the cases were the lesions distributed generally over the body; one case had two lesions and these on the face, another a woman of forty-five years, with a very active lesion on the chest which traversed several inches of skin over night, in three days crossing over one breast and down the sternum, then up the chest wall to the starting place; in this case three separate unsuccessful attempts were made to find a parasite.

CASE. Adult male, aged forty-three years, carpenter, general history negative. Present condition first began, three weeks previous to being first seen, at which time the accompanying photographs were taken. Patient had been sleeping on the porch of his house, and owing to lack of work had been lying around with very little clothing, trying to keep cool; the lesion began on the back during the night. At first there was only one, but in three days there was a number of separate furrows; some of these extended to the thigh and others forward to the abdomen and flanks (Fig. 2), while other lesions extended up to the shoulder and down the arm, and there was a very active



FIG. 2.—Showing *Larva migrans* infection lesion on flank three days' duration.

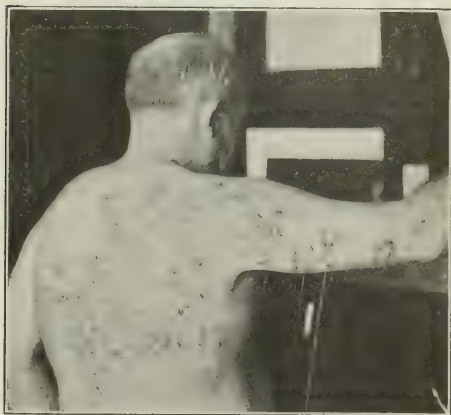


FIG. 1.—Showing numerous crusted lesions, new furrows beginning in the crusts of the old *Larva migrans* infection.

lowing description, "Under the name of creeping eruption, *Larva migrans*, hypnomyoderm (Kaposi), is described a rare lesion of the skin produced

¹Harvard Odontological Society, October 15, 1914; Eastern Graduate of the Angle School of Orthodontia; section in laryngology, New York Academy of Medicine (*Laryngoscope*, November, 1912); National Dental Association, 1912, and elsewhere.

*Read before the Duval County Medical Society, Jacksonville, Fla., October 4, 1914.

lesion on the hand, not shown in the photographs. Intense itching has been a constant symptom. The general character and course of development of the lesion in any case of creeping eruption is such that it would seem a very simple matter to obtain the parasite; in this case, as in others, repeated examinations were made. The furrows were slit up with a bistoury and near parts were rubbed and squeezed, and all pus, blood, and serum repeatedly examined but no parasite was found.

The creeping eruption lesions, when first seen, are raised erythematous lines, possibly one eighth to one twelfth of an inch above the skin, with a tortuous irregular course, the near by skin becoming slightly erythematous, the furrow rapidly filling with serum, which in the course of a day becomes seropustular. These are either ruptured by the scratching of the patient or dry up, leaving a crusted lesion. New lesions will at times begin within an inch or so from the old one; in the figure of the back (Fig. 1), new furrows can be seen in the crusting of old ones. The only treatment that has given uniform results in the writer's hands has been by cutting the skin over the furrows with a bistoury and applying the tincture of iodine and phenol in equal parts.

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2. GROSSMAN: *Journal A. M. A.*, January 1, 1910.

429-432 St. JAMES BUILDING.

HOW TETANUS MAY BE ABORTED.

A New Syringe for Punctured Wounds.

By McW. B. E. SUTTON, B. S., M. D.,
New York.

After reading the articles in the NEW YORK MEDICAL JOURNAL for the treatment of tetanus, I feel it my duty to present to the profession a very simple instrument I devised for the treatment of punctured wounds.

In the summer of 1911, while in charge of an emergency field hospital on the public beach at

and air, a punctured wound being an ideal medium for them.

Technic.—1. Wash with water; 2, wash with hydrogen peroxide; 3, soak in tincture of iodine U. S. P.; 4, put in an iodine pack, removed every

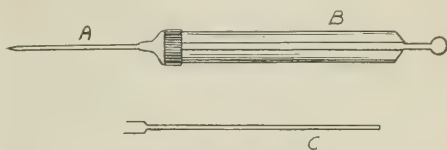


FIG. 2.—Intramuscular needle.

twenty-four hours till danger of infection is past; 5, bandage.

My report is based on eighty-eight cases of punctured wounds, and one bad case of dog bite. In every instance the wounds healed by first intention.

Tincture of iodine is recommended by the New York board of health as the best and safest cauterizing agent. I use this instrument in all wounds of the skin. By using this instrument with the technic outlined, tetanus can be aborted if treated in time.

1979 BEDFORD AVENUE, BROOKLYN.

PASSIVE CONGESTION OF THE LIVER
SIMULATING ABDOMINAL TUMOR.*

By CHARLES R. ROBINS, M. D., F. A. C. S.,
Richmond, Va.,

Professor of Gynecology, Medical College of Virginia; Surgeon,
Stuart Circle Hospital; Gynecologist, Memorial Hospital;
Chief Surgeon, Virginia Hospital.

CASE (19-136). Woman, aged forty-two years, white, married twenty-three years, V para, two miscarriages, last pregnancy seven years ago, child born at seven months, lived three months.

Entered the hospital in a highly nervous and hysterical condition; complained of her right side and said that she had not been able to lie on it for five months without its beginning to thump. She had been troubled with her right side for about ten years and it appeared to have been getting worse right along. Pain and tenderness were marked. She said she had secured temporary relief at times from the use of fly blister and painting with iodine. Once in a while, she had suffered with pains in the side of her head which had been pronounced tic douloureux. Six weeks previously, she had been taken with a fever, during which she had two decided chills and had become jaundiced. The fever and jaundice gradually cleared up until just before entering the hospital. She had suffered also from an attack of jaundice about six months before this, which had lasted about six weeks. Both attacks had subsided under treatment with saline purgatives.

Her appetite had not been good since the last attack of fever and jaundice six weeks ago; she had suffered from nausea, and could not take solid food or cold drinks. Anything taken in the stomach caused distress and an uncomfortable feeling and she was thirsty all the time. Her abdomen had swelled a great deal but had since gone down. Her menstruation was slightly increased in amount at last period, but otherwise normal; no history of leucorrhea. At times urine had been thick, scanty, and high colored, but this was relieved by treatment. She had always suffered from constipation. She had at times suffered with swelling of the feet and had had some respiratory disturbance. A year previously a tumor had been discovered in her upper right abdomen which had continued.

On physical examination, no trouble was detected in the lungs, the heart sounds and pulse indicated myocardial

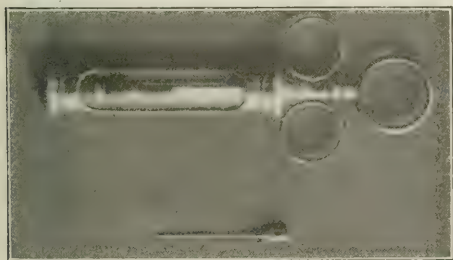


FIG. 1.—Doctor Sutton's punctate syringe.

Coney Island, having a large number of punctured wounds to treat, and not knowing of any instrument with which I could cauterize the bottom of the wound, I devised the following instrument, which I call Doctor Sutton's punctate hypodermic syringe. It is simply a syringe barrel with a deep intramuscular needle, whose point is made blunt. This should reach the bottom of any punctured wound. It is an acknowledged fact that the tetanus bacillus grows best in a medium excluded from light

*Read before the Southern Surgical and Gynecological Association, December 15, 1911.

degeneration, but no murmur or valvular insufficiency was detected. Several blood pressure readings after treatment had been instituted, varied from 85 to 100, systolic. There was no edema and no ascites. The abdomen was very prominent and somewhat tense. In the upper abdomen to the right of the median line and coming apparently from the under surface of the liver was a globular tumor about the size of a grape fruit, which could be easily moved about and which moved with respiration. It was quite tender and tense and gave the sensation of fluid in a tight sac. Owing to the large abdomen, physical signs were not distinctly elicited. Attempts to reduce the tumor into the kidney space were unsuccessful, and in making the bimanual examination of the right loin, no palpation of the tumor could be made posteriorly. The Wassermann test was negative. Examinations of blood and urine showed no deviation from normal.

Three days after entering the hospital, patient was taken with a severe pain in lower abdomen and nausea, which gradually subsided. Owing to the extremely unsatisfactory condition of the patient's nervous system and to uncertainty of diagnosis, she was kept in the hospital for sixteen days before operation for observation and treatment. At that time repeated examinations enabled us apparently to exclude the kidney; the tumor remained nearly the same size but was slightly diminished and was not so tender as it had been. It was still fairly movable. On account of the previous chills, fever, and jaundice and the physical findings, a tentative diagnosis of distended gallbladder was made and the abdomen opened by a right rectus incision. The palpable tumor was found to be the right lobe of the liver, which was enlarged and congested and displaced downward with its lower portion projecting into the abdomen, the edge of the liver being rounded off by the swelling. The color was quite dark and presented a slight nutmeg appearance. The gallbladder and ducts were examined and found to be normal. The appendix presented well marked evidences of chronic inflammation and was removed. A small section of the liver was removed for microscopic examination and sent to Dr. A. C. Broders, at the Mayo Clinic, who reported as follows: Marked fatty degeneration with some cirrhosis and round cell infiltration.

The unusual and unexpected findings in this case led to a search of available literature. Only one reference to such a condition was found, but this one presented many points in common. In Case No. 93 in Cabot's *Differential Diagnosis*, the following is noted: An Italian laborer forty years old had had rheumatism and valvular disease of heart developed. For six weeks previous to admission, he had had gnawing pain in epigastrium and right hypochondrium, gradually getting worse and sometimes disturbing his sleep. Physical findings of chest, etc., are described and then "in the upper right abdominal quadrant is a mass easily felt bimanually, descending over an inch on full inspiration, with a rounded edge and a semifluctuant substance. Whether or not the liver is continuous with the mass described above cannot be certainly determined. The liver edge is sharp on the left of the median line, but cannot be felt distinctly on the right. The spleen is palpable, abdomen otherwise negative; likewise the rest of the body. Urine, forty ounces; specific gravity, 1021. No albumin, pus, blood or casts. Blood normal." After an analysis of the case Doctor Cabot states: "Is it possible that simple passive congestion due to the cardiac lesion might produce so soft an enlargement of the liver? Against this is the absence of much stasis in the lungs, legs, or abdominal cavities, and the fact that the questionable mass cannot with certainty be connected with the liver edge palpable to the left of the median line. A surgical consultant considered the symptoms due to a tumor of the gallbladder or of

the kidney. On the whole, there seems to be enough doubt upon this point to justify exploratory laparotomy. Laparotomy showed the kidneys and gallbladder to be normal. A large dark congested liver was the only finding. This case seems to be of unusual interest, since it shows that passive congestion of the liver is one of the items which must be seriously considered in a diagnosis of diseases involving the upper right quadrant."

In discussing venous congestion of the liver, Dr. W. Hale White says: "The enlargement of the liver is firm and uniform, its edge is hard and uniform, its surface smooth. The enlarged organ may reach to the umbilicus, and as the abdominal muscles are often weak in these cases, especially in women, and the liver is very heavy from the extra amount of blood in it, the organ is often a little dropped. Pain and tenderness over the liver are very common; they are due in some cases to stretching of the hepatic capsule, in others to local patches of perihepatitis. The skin over the liver may be tender. In severe cases there is often slight jaundice. Dyspeptic symptoms are frequent."

The subsequent history of the case which I report was very satisfactory. She was treated by prolonged rest in bed, strophanthus, and iodides. Under this the enlargement of the liver gradually subsided until eventually it was only slightly palpable and all tenderness had disappeared. The patient was fitted with a supporting corset and gradually resumed her usual habits and exercise and has remained well to the present time, a period of about nine months.

Syphilis of liver seems to have been thoroughly excluded by absence of history, of clinical findings, and a negative Wassermann. The pathological condition of the appendix seems to have been sufficiently pronounced to account for some of the abdominal disturbance. The cardiac condition is the only evident etiological factor definitely associated with the marked changes in the liver. This was doubtless augmented in this case by loss of abdominal tone and hepatoptosis. It is certain that after circulatory equilibrium had been reestablished by rest and cardiac support, the patient has received great comfort from a properly fitted surgical corset and remains well.

8 WEST GRACE STREET.

A PROTECTIVE SHIELD FOR THE HOLMES NASOPHARYNGOSCOPE.

By MAX LUBMAN, M.D.,

New York,

Chief Assistant, Ear, Nose, and Throat Department, H. J. Moore Hospital.

Although I cannot improve upon the Holmes nasopharyngoscope, which revolutionized the otological field in diagnosis and treatment, still I take the liberty to suggest an addition which will remove some unpleasantness in its application.

In using this instrument, the respiratory organs of both physician and patient are in such close contact that it is quite inevitable that one inhales the expired air of the other. This may prove not only

unpleasant and obnoxious, but also very unhygienic, for the patient may suffer from not only ozena, pyorrhea, decayed teeth, fetid breath from constitutional ailments, but also from tuberculosis or lues, and under no circumstances should the physician allow himself to be in close contact with such a patient. I suggest, therefore, a protective shield, which is so cheaply produced that the physician can afford to use a new one for each patient.

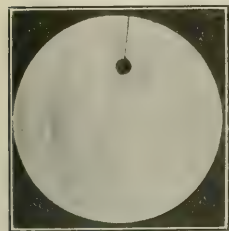


FIG. 1.—A circular shield of plain cardboard, six inches in diameter, with a circular opening to fit the instrument between the two knobs.

The shield is circular, made of plain cardboard, six inches in diameter. It has a circular opening of a size to fit the instrument between the two knobs.

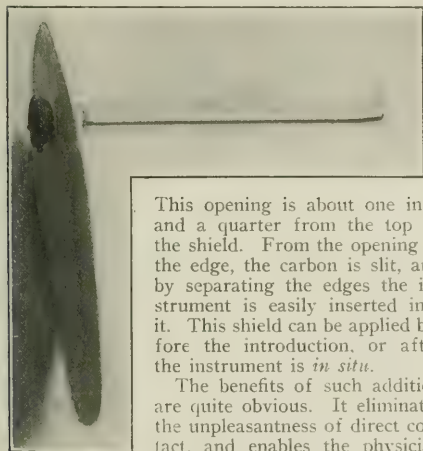


FIG. 2.—The shield *in situ*, can be applied before or after the introduction of the instrument.

This opening is about one inch and a quarter from the top of the shield. From the opening to the edge, the carbon is slit, and by separating the edges the instrument is easily inserted into it. This shield can be applied before the introduction, or after the instrument is *in situ*.

The benefits of such addition are quite obvious. It eliminates the unpleasantness of direct contact, and enables the physician to make a more thorough examination of the patient. And considering the wide use and indis-

septum, quite a large ulceration, which bled easily upon being touched. The mucosa on both sides was considerably swollen. This case aroused my curiosity, and I determined to examine all the habitués in the City Prison for like conditions. I found septal perforation in more than half of the addicted then imprisoned in the institution. Some were unaware of perforation until told by me. The condition exists only in sniffers of cocaine and heroine. Cocaine appears to be more destructive to the nasal mucosa. Heroine used full strength also produces the condition. A combination of heroine and cocaine will produce perforation in a few months.

The history obtained in general was as follows: Upon beginning to sniff either cocaine or heroine, the nose feels clogged up when the effect of the drug wears off. While the action of the drug continues, the sensation produced in the nose is one of coldness and numbness. The habitué pays no attention to the clogging of the nose when the action of the drug wears off, because of the resulting symptoms, usually noticed upon withdrawal of a habit forming drug. He therefore takes another sniff in order to steady himself once more and the coldness and numbness of the nose, with the resulting contracting action upon the mucosa allow him to breathe freely again. This process of taking the drug continues probably for months, when it is noticed by the habitué that his nose bleeds when blown. He inserts the small finger and feels a crusty formation on the upper part of the septum. If the nose is examined at this period, it will be found that the mucosa is highly inflamed and swollen. The bloodvessels are dilated and at the upper part of the septum, at the union of the bony and cartilaginous part, is visible an ulceration. This bleeds freely when touched with an applicator. If the habitué continues to use the drug, the ulceration becomes deeper and finally results in perforation.

The size of the opening varies, depending upon (a) the period of addiction, (b) the kind of drug taken, and (c) the amount and strength of the narcotic. (a). Those addicted to the drug for several months present a congested swollen mucosa; those for a longer period, an ulceration in addition to the congestion and swelling; those addicted for a year or more, a septal perforation. (b). If cocaine has been used, the initial congestion is greater than when heroine is used. If both cocaine and heroine are used, the perforation occurs much sooner than when either is used alone. (c). It may readily be understood that habitués using a large amount, present greater and more rapid destructive changes than those using a small amount and that if pure cocaine and heroine are used, the destruction of mucosa will be accelerated.

When perforation has been present for about a month, an examination of the nasal cavity discloses a mucosa which is rather pale and dry looking. The bloodvessels appear contracted. At the union of the bony and cartilaginous septum is seen the perforation.

The shape of the perforation varies. In some individuals it is absolutely round, with a smooth circumference, while in others, in whom the habit has been existing for a long time, the perforation is large and irregular in circumference.

scope, an addition of this sort may prove both a protection to the physician and a benefit to the patient.

616 MADISON AVENUE.

SEPTAL PERFORATION IN NARCOTIC HABITUÉS.

By PERRY M. LICHTENSTEIN, M. D.,
New York,

Physician, City Prison.

My attention was recently attracted by a drug habitué in the City Prison, Manhattan, who requested some medication for his nose, stating that he could scarcely breathe at times. His nose was sore and bled frequently. I made an examination of the nasal cavities and found the mucosa highly inflamed and at the junction of the bony and cartilaginous

The occurrence of perforations from occupational causes has long been known. This is particularly true of workers in mercury, arsenic, and Paris green.

At the present time, when narcotic addiction is so widespread, such destructive changes as above described should stimulate us in our fight to eliminate the habit. The effect of the drugs upon other parts of the body is too well known to require description. We must take into consideration syphilis and tuberculosis in diagnosing the condition. In none of the habitués examined was either of these diseases discovered.

As to the treatment of perforation due to sniffing of habit forming drugs, I can recommend only operative procedures. The discontinuation of the drug is of course a necessity.

882 KELLY STREET.

CHRISTIAN SCIENCE CURES.*

Tales from Dreamland's Lore.

By HENRY K. CRAIG, M. D.,

Washington, D. C.,

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When the curtain first rises on the stage of history and discloses the early migrations of the peoples of antiquity, the period, now venerable with age, presents a picture, a certain feature of which stamps the civilization of every nation on earth—the possession of a popular mythology. When the Aryan people first began to break up and scatter to the corners of the earth in search of new habitations, whether on the table lands of Iran or on the plains of India, whether on the peninsulas of Greece and Italy, or in the latter phase of that migration, to the shores of the New World, they carried with them their myths, ballads, and legends. In a retrospective glance at the history of civilization as revealed through these legends, whether among the primitive people of the Tigro-Euphrates valley or the Turanian dwellers along the shores of the Yellow river, there stands forth as a feature in the nature of man a distinctive trait—an irresistible desire for the unknown and unknowable, an uncontrollable love of the marvelous. The Chaldean religion, even centuries later when Chaldea was hardly more than a geographical reminiscence, continued to influence the minds of men and display this trait—the love of the marvelous—to a marked degree. The astrologers, who were accorded the leading position in the clan, constructed, from the study of the heavenly bodies, the most ingenious and elaborate stories. In studying the Chaldean cosmogony, the Chaldean idea of the origin of the world, the reader cannot help noting the marvelous character of their conceptions. And their hero and nature myths! What student of history fails to perceive, in the legends of Greece and Rome, how Chaldea transmitted to posterity those remarkable fables which formed part of the history of the Greek and Roman States in their most splendid days! And how can he fail to note that Chaldea, among other

lands, gave to the children of Zeus and Mars, themes for their wildest mental abstractions! The Chaldeans found an indescribable delight in the contemplation of the adventures of Izdubar as portrayed in the Twelve Books of the great Chaldean epic; Greek and Roman children, delighting in the story of the twelve labors of Hercules, heard a legend of bygone days. But the recitation of the legend served its purpose, it satiated their love of the marvelous. The magic and divination of Shamanism, the belief in the existence and malign influence of spirits, gave rise, not only to magic rites and the use of charms, but to legends innumerable in which heroes by the legion appeared upon the scene and performed their valorous deeds. This satisfied the people—they craved the marvelous—and if the literature of the day is to be believed, that craving was satisfied. And in the shadowy portion of Grecian history, what a mass of legends! Every tribe and village, whether on the mainland or a distant island, possessed its heroes whose remarkable deeds were embalmed in song and story. Minos, king of Crete, kept the Minotaur, a frightful monster, in a deep cave and fed the beast on beautiful young maidens. Soon all Athens worshipped Theseus, because, according to the story, Theseus—noble savior of Athenian women—arose in his might and slew the Minotaur. Jason, a prince of the blood royal, set sail in a fifty oared boat for the grove of Ares, there to recover the golden fleece, which was nailed to a tree and guarded by a horrible dragon. And as the story reads, Jason was not alone. Hercules, to whom the twelve labors were but a pastime, went along, willing to add to his laurels by slaying a few dragons. Theseus, reads the wondrous story, was also in the party, as ready to recover the golden fleece at the risk of his life as to save the beautiful maid of Athens from an ignominious death. And to complete this "myth from the rainclouds," Orpheus, the wonderful musician, unwilling to remain behind, seized his magic harp, and, in the grove of Ares, piped such a beautiful lay that sticks and stones, assuming the animate, danced to the enchanting sounds that proceeded from his wonderful instrument.

The Roman, too, longed for heroes, heroes to whom Cimmerian realms were but an incentive to action and who would regard an encounter with the watch dog of Hades as a golden opportunity to court the goddess of Fame. They knew of the traditions of the Golden Age—an age in which the gods were wont to descend upon earth and hold sweet converse with men—and could only conceive of a national history in which the marvelous was inscribed on every page. And so it was that the Aryan tales that supplied Greece with legends also furnished materials for the myth makers of the Italian peninsula, for the basis of the Roman theogony was essentially Grecian. All of the attributes of the Grecian Zeus are presented in the Roman Jupiter; and when the Roman desired to know the will of the gods, it was to the Delphic shrine that he wended his way where, under the beautiful Grecian skies, he listened to the wonderful yarns that artful men passed along as the golden words of the deity. Certainly the "children of Mars" profited by their lessons and satisfied their desire for

*Read at the sixty-second regular meeting of the George Washington University Medical Society, November 24, 1911.

the marvelous, for the legend of the Sybilline books, even if all of the other strange events and singular occurrences were effaced from Roman history, would serve to convince the reader that the Roman was but human, and had at last his fill of mystic nonsense. And to the last, the Roman delighted in the relation of the marvelous, for it was Pliny, the great naturalist, who recorded for the benefit of his marvel loving contemporaries, the story of the two nightingales that talked both Latin and Greek.

To the people of the Middle Ages in particular, fiction was a delight not to be dispensed with, for medievalism certainly held forth a fertile field for the contemplation of the myth maker. Held in the bondage of a lively imagination, the medieval mind was wont to revel in the contemplation of demons, phantoms, and malign spirits. Spook stories were in the greatest demand. These were the good old days when air and earth were filled with strange birds and strange beasts, and hobgoblins met the gaze at every step. In conformity with the predictions of the prophets, the heavens would open and loose cherubim and seraphim, and the air would be suddenly flooded with celestial music, for the medieval citizen was the willing victim of fables, of singular illusions, and strange beliefs. And how eagerly the people listened to the yarns of the magicians, while the sorcerer appealing to the sensitive nature of his auditors, made apparent realities of his vivid dreams and in the relation thereof as frequently frightened himself as his hearers. For now were come the halcyon days of the dreamer who, on rising, related to his awe stricken friends the visions of the night; the hearer, a lover of the marvelous and determined on belief, gave free rein to his imagination. Urged on by an irresistible impulse, the men of the Middle Ages accepted without hesitation the dreamy concepts of their contemporaries and viewed the relator as one proceeding in the execution of a providential mission. Nor was the enjoyment of the delusory concept a matter of caste. From the tales of the mystic the peasant derived an inestimable pleasure, while the prince, likewise a lover of the marvelous, was not averse to embarking upon a scheme which had nothing to commend it but the vagaries of the soothsayer's brain.

In the study of this peculiar trait of mankind, the love of the marvelous, the student of mythological lore, ancient or modern, finds himself confronting incidents which have no parallel in every day experience. The sages of antiquity appear on earth and hold converse with startled mortals, or perhaps the startled mortal is swiftly conveyed to distant parts, to Paradise, for instance, where he surveys the Elysian fields and hears the angels sing; to the antipodes, perchance, there to view a new race of men with horns and bulging eyes. Again the traveler finds himself passing through realms of Stygian darkness to the den of the evil one—the place where the penitent sighs in vain and where furnace stoking is a fine art. The sentiments—love, hate, fear, and anxiety—each responsive in its respective domain, furnished a series of phantoms which too often left an indelible impress upon the subject.

How can this myth making tendency of the human mind render its account? How can a reckoning be

made of ideas in which self evident incongruities are so prevalent and in which the probabilities of time, place, and circumstance are entirely ignored? Among the numerous and varied psychological phenomena that claim the attention of the studious and contemplative part of mankind, the dreaming state occupies a position of the first rank. To the question, "What are dreams," an eminent writer has answered that "they constitute the conditions and operations of the mind during sleep." To find a person who has not been the subject of dreams is a difficult matter, consequently the subject has always aroused a vast amount of interest among all classes of people and in all ages. In seeking a satisfactory interpretation of the phenomena of the dreaming state, striking facts present themselves at the outset of the inquiry—the continuance of the train of associated ideas of the waking hours during sleep, and the suspension, during slumbers, of volitional control over the current of thought. Numerous instances are on record in which new and harmonious concepts have been formed during sleep as the result of continued mental activity in that state, but in the main the dreamer's concept is a hideous distortion of fact and fancy—a creation which the conscious hour, in the manifestation of complete and coordinate sensory action, instantly rejects as an impossible chimera. Eminent men, whose daily tasks called upon them to indulge in calculations of the most profound character, having been obliged to cease their work in order to obtain needed rest, have experienced their calculations, correctly solved, presented to them in sleep. The great poet, Coleridge, produced one of his most beautiful works, *Kubla Khan*, from the concepts of a dream. While it is an unquestioned fact that the customs and associations of daily life follow men in their sleep, and, in a measure, determine the dreaming concept, it is likewise a fact that dreams originate in, and are determined by those slight bodily sensations to which man is liable in the moment of repose. Audible impressions, in particular, by disturbing the sensorium while the mind is at rest, produce the most remarkable effects. Unlike the waking thoughts, however, dreams are not controlled and regulated by surrounding objects. In the conscious moment the train of thought is influenced by the actively perceptive power of the senses—sight, hearing, touch, etc.—and the salutary influence of surrounding objects in regulating the mental concept and in checking the tendency to indulge in reverie is a matter of every day experience. In the dreaming state the perceptive powers are almost entirely closed; volitional control over the current of thought is frequently entirely absent; the salutary regulating influence of surrounding objects is lost, and, like a ship at sea without a rudder, the mind, now aberrant, wanders in all directions. Now it is that the probabilities of time, place, and circumstance are entirely disregarded; now it is that image after image, scene after scene, adventure after adventure, all vividly and distinctly portrayed, pass before the dreamer's mind in rapid review. What a chance for the myth maker! While reading the account of the fabled gods that dwelt on Olympus's top, one can almost see the sleeping Greeks nestled in the sun kissed, vine clad hills at the foot

of Parnassus and Helicon, their restless minds conceiving of fantasy after fantasy in which the deities of their beloved land display to mortal man their variegated and supernatural powers.

In the long list of mythological creations for which man may be made to stand sponsor, no subject relating to the human family has received a greater share of attention, at the hands of the myth makers, than that of health. That the gods, those superhuman beings that found existence only in the mind of credulous man, should be free from the "natural shocks that flesh is heir to" was but a matter of course. In this respect, the mind of dreaming man assumed its most pleasing form and the afflicted human being found no counterpart in the life of the deities. The heroes of the myth makers dwelt in regions celestial, breathed a superior atmosphere, dined on ambrosia and nectar. Theirs was a care free life, they led an ideal existence, and disease was either unknown, or where pestilence threatened, the genius of the myth maker saved the day and gave to the legend one more marvelous turn. And to the latter day saints of dream lore is fiction indebted for some of its choicest morsels, for in the composition of myths relating to disease and its cure, the dream therapist has contributed some of the finest specimens of the myth maker's art.

Now it is a recognized fact that the operations of Nature are characterized by a simplicity and regularity of action which at once attracts the attention of the most casual observer. Here everything proceeds in an orderly, well regulated manner. There is no effect without an adequate cause; the same circumstances always produce the same results; everything maintains its appropriate place and relations; for were it otherwise, were chance a factor in the order of things, the physical world could no longer maintain its existence. Suspend, for an instant, the law of gravitation and the result is chaos. Suspend the laws of Nature and insert the element of chance—the farmer could no longer grow his crops, no longer could the mariner, even with chart and compass, read the way of his flight across the trackless sea. Set aside the laws of Nature—as well set aside the eternal and immutable principles of moral rectitude and hold man an accountable being! The student of medical science, in the pursuit of his investigations, likewise ascertains the existence of certain fixed principles which assume a position of the first rank and exert their influence on all associated inquiries. Disease is but a reaction of the body to injurious influences, and the factors, subjected to analysis, are found to act in accordance with well known laws, both in the causation and the ultimate disappearance of disease from the body. In the reactionary process, the cells and fluids of the body always manifest the same change in response to the action of the same injurious agent or agents. The germ of diphtheria always produces diphtheria, never smallpox. In its attack upon the body, the germ of tetanus, by virtue of a specific poison elaborated by that organism, manifests a selective action on certain tissues—the brain and spinal cord. As the direct result of the attack of the tetanus poison on the brain and spinal cord, a violent, convulsive condition is produced and the disease known as "lockjaw" results. The germ in

question does not attack the lungs and produce pneumonia. In the process of repair, a broken bone always proceeds by definite steps toward a definite end—each stage of the healing process proceeding in accordance with certain laws and requiring, for the completion of the reparative process, a certain period of time. In the development of and recovery from all forms of disease, certain laws are in evidence—the element of chance is ruled out of court. Consequently the system which makes disease and the recovery therefrom dependent upon a mere enactment of the will, rests upon a very shaky foundation. He who attempts to annihilate natural law as it relates to disease will find equally profitable employment in attempting to silence the interminable sound of the ocean with a pass of the hand.

Of late years perhaps nothing in the myth making line has added so much to the gayety of contemplative moments as that worker of modern miracles—the dream therapist. With the exact nature of disease and the laws in relation to the same, the dream cure artist has no concern. In the problems of physiology and other sciences he has not the slightest interest. Theory and speculation press eagerly in his brain, but exact knowledge, the accumulation of fact after fact, has no place in the scheme of the dream therapist. With him all is chance—he delights in paradoxes, dreams, and chimeras. A few moments' repose in a sylvan shade and the products of his dream illumined fancy will find a way out of all affliction—certainly as far as belief on the part of an ever credulous public is concerned. Now it is a matter of fact that a person absolutely destitute of genius may, at the expense of a small amount of time and labor, store away in his mind a great number of particulars; these particulars he derives from no fixed principles, and from these particulars he deduces no definite conclusions; he is never destined to enter, much less to extend, the boundaries of scientific knowledge. He remains contentedly in the outer chamber, concerned occasionally in the use of his circumstantial memory, but, on the whole, much more interested in the study of the foibles of human nature than in the pursuit of an inquiry destined to bring order and harmony out of a chaos of apparently dissonant facts. And, furthermore, in the dream therapist is perceived one whose life is, in the main, dominated by the emotions, which in their turn, are liable to sudden and abrupt changes. This emotional instability is shown in a lack of control of the mental equilibrium, for the dream therapist, ever longing for adventure, spends his time in the composition of ingenious fables in which reason is not suffered to assume its proper dominion.

Of the many cults which have enriched the literature of dream cures, Christian science by no means takes a position of secondary importance. In the composition of ingenious fables which have no other origin than their dreams, the members of this cult need fear no competitor. The Eddyite is possessed of a wonderfully constructive imagination—without guidance or restraint, his creative faculty evolves conceptions which pass all understanding. If there is any limit to the number and variety of utterly incongruous conceptions which can pass through the

mind of an Eddyite, sleeping or waking, it has yet to be determined, for in an interval so brief as to be incapable of measurement, his unbridled imagination can conceive of more fantasies than are to be found on the pages of Æsop and Grimm combined. The Christian scientist is an annalist, but a philosopher, never! The Christian science mind is one that deals more with alluring circumstances than with concrete facts; a mind more tenacious of vague conceptions than of specific and indubitable assertions. Certainly the rise of the Christian science movement displays, on the part of an ever gullible public, a singular fascination for the marvelous and alluring circumstances attendant upon the concepts of the dreamer. In the year 1866, according to a statement in her remarkable book called *Science and Health*, Mrs. Eddy had a "vision," and this "vision," so she stated, "announced the equipollence of God and consecrated anew her flagging affections." About this time she recovered from a slight injury and the recovery she attributed to mental influence—the direct result of the study and "new understanding" of the Scriptures. Mrs. Eddy now informed an eager listening world that she was Divinely illumined, the chosen messenger of the Almighty in the work of spreading abroad the new gospel. Maintaining that Christian science was the one true faith, Mrs. Eddy managed to attach her name to the title page of a book, which as a compilation of deliberate fabrications and contradictory aphorisms, surpasses anything that ever came out of a printing press. According to the statements of the Eddyites, the ills of human flesh are due to a malign mental state called, in Christian science parlance, "mortal mind." In the depths of spiritual oblivion, when sin and evil have completely submerged the stricken soul beneath the waters of dark despair, disease arises by the action of mortal mind, the great causative factor of disease—in Christian science. Disease, in Christian science, is conceived in "mortal mind" alone, not in material matter, such as germs and the various chemical poisons. To cure disease, in Christian science, it is only necessary to destroy the disease in mind, and Mrs. Eddy left to the world a wonderful panacea, for it was Mrs. Eddy who wrote the words, "Simply forget it." More than this, disease may be occasioned "through the transfer of thought from one mortal mind to another," and this wild dictum formed the basis of those frightful delusions from which Mrs. Eddy suffered during her lifetime. The transfer of disease by means of wicked thoughts constitutes the famous "M. A. M." doctrine—malicious animal magnetism—of Christian science and it was this nightmare, simply the "witchcraft" of former days, that haunted Mrs. Eddy constantly; in fact, so firm was her belief in M. A. M. that she recorded, in her writings, the death of her husband by "arsenic mentally administered."

How the legends of this giddy cult accumulate! If you burn your finger, mortal mind, not the flame, is responsible for the trouble—so reads Mrs. Eddy's book; and in a similar manner spontaneous combustion may be caused—a mortal thought and a building may be set on fire! If you suffer from hunger or thirst, your mind alone is responsible for the belief; you are hungry or thirsty only according

to your belief. To remedy the matter, simply change your belief; for the reader of *Science and Health* is positively assured that hunger and thirst are but the wicked concepts of "mortal mind" and in no way the indication of bodily needs. Nor is this mad dictum the result of deduction from the thousand absurd postulates which crowd and disgrace the pages of Mrs. Eddy's weird book; on this point the illumined one employs—wondrous to relate—specific language: "Food is not necessary to sustain life." How are these miracles accomplished? According to Mrs. Eddy, the continued study of her writings results in a transformation of the individual into a state of "holy inspiration"; in this condition, in this state of sanctification, man is not liable to the contaminants of mortal existence—he is no longer natural, he is supernatural, of "the One Mind, God." When the mind has undergone this spiritual purification, when, as commanded by Mrs. Eddy, "we learn in Christian science how to be perfect, even as the Father in Heaven is perfect" (*Science and Health*, ed. 1890, p. 177), the thoughts are turned away from the natural and towards the spiritual, and disease disappears.

If man could transform himself from the finite into the Infinite, if by Christian science or any system of philosophy, man could clothe himself with the power and attributes of his Creator, then disease, even by the process of mental negation, could be instantly eradicated from the body. The Creator is Infinite, His powers are unlimited; man is finite, his powers are distinctly circumscribed. He Who created the world and gave being to the laws which control and regulate it, can, by a thought, change the existing order of things. He can at will suspend the operation of natural law, and, at His pleasure, eradicate disease from the human race. Admittedly, His being is perfect, His will is law. But can Christian science render man "perfect, even as the Father in Heaven is perfect"? Can Christian science bridge the illimitable chasm between the created Infinite and the ever existent Infinite and endow mortal man with the attributes of his Creator? Such is the claim, such is the foundation of Christian science; for Christian science, according to the teachings of its founder, changes man from a material to a spiritual being; the handiwork of God undergoes a change at the hands of Eddyism, and man—finite, mortal, sinful man—takes his place in power and glory beside his God, he is "perfect, even as the Father in Heaven is perfect." What a wondrous book is *Science and Health*! "Perusal of my publications has healed disease completely," writes the alleged author of this volume. Now if disease is caused only by sin, the absolutely sinless alone can escape disease. In order to free himself from infection, man must attain a state of spiritual perfection and, wondrous to relate, the desired end, the earthly consummation of our imperfect natures can be reached by a simple process—the perusal of Mrs. Eddy's writings. By the reading of Christian science literature, man's sins, the concepts of mortal mind, are quickly washed away and he is absorbed into the primal essence, God. The new man, infinite, omnipotent man, sets aside his human cast and frees himself from the

operation of natural law and disease—so Christian science states. Once of mortal mind, now of "the One Mind, God."

What is to be said of this aberrant nonsense, Christian science? Is it new? Thousands of years before the birth of Christ, the world's greatest dreamers, the Hindus, created a weird system of philosophy. They conceived of all earthly existence as a period of travail and sorrow; of flesh—material matter—as the seat of all sin, and of sin as the cause of all woe. To free himself from sin, to escape the inevitable punishment which he believed to follow the accumulated lusts of the flesh and the conscious hour, the Hindu believed that he must purify his soul—render it acceptable and cause its resorption into Brahma, the Creator. His method of soul purification was characteristic of the age—self torture of all kinds, such as starvation, flagellation, and burning of the flesh. This would purify his unclean, earthly mind, transform him into an absolutely pure mental state, and now, being born again, his soul was sure to find peace and repose in Brahma. It was indeed an ideal philosophy, an ideal solution of the problem of earthly woe, but withal, a dream. In Christian science, simply the attempted transformation of the natural man into the supernatural by a mental process, the nineteenth century witnessed the reproduction of a philosophy not less than three thousand years old. And the essential difference between the dream of the Hindu and the dream of the Eddyite?—the Hindu accomplished his object by self torture, the Eddyite attains his end by a method which, if the mental anguish of the generality of readers is placed in the balance, surpasses the entire catalogue of Hindu cruelties, namely, the reading of Mrs. Eddy's writings.

Now to the wonders—for in the application of its mad doctrines to the construction of dream cures, the Christian science dreamer has led the Hindu a merry chase. Tumors disappear over night; broken bones heal before the surgeon can reach the spot; mangled limbs assume their natural form before the extent of the injury can be determined. Even the most malignant diseases yield to the purifying influences of Eddyism before the man of science can as much as determine their nature. The laws of Nature, time, place, and circumstance have no consideration where the Eddyite is at work—the natural is no more, all is supernatural. Whence and how these wondrous legends? Does the Eddyite spurn those laws of Nature that the "founder and discoverer of Christian science" so rudely condemned? Does he refuse material food and drink and, in conformity with the teachings of the cult, live on spiritual sustenance? Hardly! Does he wear material clothes in cold weather and, in conformity with the demands of natural law, don lighter garments in hot weather? Certainly, for he is still mortal, of mortal mind, not supernatural, of the Divine Mind. Does he bathe himself? Natural man cannot escape the penalty imposed upon those who neglect personal cleanliness; yet Mrs. Eddy states that "the Christian scientist takes the best care of his body when he leaves it most out of his thoughts," and to complete the medley of nonsense, informs the student of Eddyism that "bathing

and rubbing to alter the secretions or remove unhealthy exhalations from the body receive a useful rebuke" from Christian science. (*Science and Health*, ed. 1890, p. 354.) But why hygienic rules to one whose realm is the supernatural? Why the necessity of personal cleanliness where the laws of Nature do not prevail? Any one who studies the legends of the Christian scientists as found in the alleged cures affected by the cult, cannot escape the deep seated conviction that these curiously wrought yarns have a foundation either in fact or in fancy. Is the Christian scientist a supernatural being, able, in an instant to do the work of "the One Mind"? Has he learned in Christian science how to be "perfect even as the Father in Heaven is perfect"? Most assuredly not! Then in fancy, not in fact, must be sought the foundation of his weird tales.

In the "experience meeting," where these weird stories are poured forth into eager listening ears, the details are fashioned into materials which occupy the thoughts and feelings during the waking hours. The Christian scientist, an emotional being, and naturally deeply impressed with the relation of a story, which, by virtue of its marvelous nature is so dear to his heart, quickly offers his belief in its verity. His mind may retain but a few of the related incidents, but that is sufficient for the purpose. A friend, supposedly at death's door, has recovered; the Christian scientist, although ignorant of everything relating to disease and the recovery therefrom, finds it necessary to account for the happy event which now occupies his daily thoughts. While he is awake and his senses are entire, his thoughts and feelings are regulated by surrounding objects and his conception of time, of place, and of circumstance is of a normal tenor—a fact plainly in evidence to one who notes the care with which the Christian scientist, in direct contradiction of the first principle of the cult, observes the requirements of the laws of Nature. With the thoughts and feelings of the waking hours carried into sleep, the result, with the Christian scientist, is a medley of strange events and singular combinations of events. The salutary regulating influence of the normal senses is gone; volitional control over the current of thought is almost entirely absent. Now it is that image after image, event after event, all vividly and distinctly portrayed, pass in rapid review before the mind. The ideas and associations of the waking hours take part in the reverie, the laws of Nature are no more, all is a mass of gorgeous conceptions in which the blind see, the deaf hear, and the dumb talk. Upon awakening, the Christian scientist, recollecting the liveliness of the sleeping conceptions, regards the particulars of his reverie as realities; for the conscious moment only attests the verity of that which is nearest and dearest to his heart—a cure.

That the miraculous cure, as portrayed in his sleeping visions is a matter of fact, the believer has not the slightest doubt; doubt would mean the application of a test of the matter, and a test of the validity of proclaimed principles of Christian science would be disastrous to the cult. To attribute any other origin to the vast majority of the alleged "cures" related by the Eddyites is impossible. The cult numbers among its members many earnest,

well meaning people, against whom the imputation of insanity cannot be made. Yet here is a fraternity holding views, the attempted application of which would certainly result in a lunacy inquiry. Imagine, for an instant, the public spectacle of a Christian scientist attempting to render himself "perfect, even as the Father in Heaven is perfect" and defying the operation of the laws of Nature by placing his arm in a flame—or perhaps, assuming the supernatural, endeavoring to prove, in public, that Mrs. Eddy uttered a divinely inspired truth when she informed the world that "food is not necessary to sustain life!" With a mind disposed to mysticism and fully occupied in the waking hours with the consideration of miraculous cures, it is only natural that the tendency to dream should be increased, and, furthermore, that the dreaming concept should partake of the utterly impossible and incongruous nature so faithfully portrayed in the accounts of the Christian science cures—the tales from dreamland's lore.

THE NATURE AND PATHOGENESIS OF EPILEPSY.

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New York.

(Continued from page 448.)

From the foregoing few hastily sketched notes, one is led naturally to turn with increased interest to the empirical value of the modern psychobiological treatment of epilepsy in its broadest sense. From our viewpoint the educational and hygienic training of the epileptic child receives a new impetus and meaning. The use of sedatives is not to be discarded, but certainly their use as a curative agent *per se* no longer can have a place in modern medicine. The sedation only represses the libidinous energies for a time, at the end of which they have all to be reckoned with in a cataclysmic display of fits. In this sense it may be truly said that bromides do become "outworn" or "outgrown." It is interesting to note the action of the bromides on the dream state of the epileptic; the dramatization of the motive of the wish becomes intense, leading to catastrophes of accidents and assaults, fright, fear, etc. These dream settings are long in evidence before the inhibitory check is lost, or the brusque and intense physical and mental storms break into severe and frequent fits. The dream study as a control of the efficacy of any thoroughgoing plan of treatment in epilepsy is by no means one of the minor lessons taught in this paper, as one may prove to his individual satisfaction. The bromides may be given to a severe and pronounced grand mal epileptic in gradually increasing doses; at first the patient may say "there are no dreams," "they can't be remembered," or they are too fragmentary to be "pieced together"; but as soon as the bromides are further increased and the ordinary libidinous outlets by way of the attacks are suppressed, the individual epileptic will show dreams of fire, catastrophe, assault, robbery, and often extreme homicidal violence of a very distressing character. This outcome will be the more obvious in those epileptics who usually have psychic attacks. In such it is well known that

bromides have proved of least avail in treatment. In one almost experimental case I was able by proper control of the sedation treatment to produce a definite and constant fluctuation of violence dream just in proportion to the degree the attacks were repressed. It also added signal proof that the repressed discharge of a lessened number of fits went over into the dream. From this fact it is but a step to explain the crude epileptic delirious discharge in the psychic epileptic seen after extreme sedation. This happening is of such common occurrence in asylums for epileptics that the treatment principle here laid down has become almost a therapeutic proverb. Indeed, the manic and delirious episodes of epilepsy cannot rightly be viewed in any more rational light than that they occur in the most badly adapted individuals of the whole epileptic group, while the evil prognosis as regards cure in such has long been a neurological truism. It is well known that the insane epileptic rarely recovers from his epilepsy, provided, of course, that the insane episode was not produced by the abuse of sedatives. As an instance in point I may say that one of my first cured patients (now entirely free from epileptic attacks for over eighteen years) had been in two insane asylums and was classed, in one at least, as a hopeless dement. His sedation had been extreme. He had 127 grand mal attacks in the first month under the hygienic training treatment, although the sedatives were slowly withdrawn. He had been epileptic ten years before an arrest of his attacks had been brought about. At another time it will be shown that there is properly no real organic dementia in epilepsy; instead, the intense strivings of the unconscious forces so repeatedly reassert themselves that normal consciousness is persistently shattered; finally, the infantile in the unconscious state usurps the domain of conscious memories of everyday life. The unconscious then becomes inflated and so pervasive in the mentality as to bring a more or less permanent setting of their habits of action and thought. From whence came the mind in our demented epileptic just cited if it really had been lost in organic dementia? Anyone may take a severe grade of so called epileptic dementia and temporarily resuscitate much of the lost memory by the proper administration of bromides. What may be done thus in a purely artificial manner, may be still more laboriously and slowly brought about in many epileptics in a normal manner by a proper system of upbuilding treatment. There are many reasons to believe that the memory defect seen in epilepsy is directly due to the narrow range of the association of ideas which is born of a too attenuated and infantile emotional life. Whenever the essential nucleus of this libidinous energy, when properly directed, is strong enough, the memory may be restored—that this happy solution is not more frequently brought about argues not for an organic loss, but that the libido is too fixed and does not permit of a liberation of this inherent adhesiveness of the epileptic mind. In short, so called epileptic dementia is apparent but not real—probably in reality it is a disguise somewhat similar to the apparent dementia of dementia præcox, to which latter mental disorder epilepsy has many another obvious kinship.

As regards this latter statement, it may be inter-

esting to know that the epileptic takes the inquiry into his mental infantilism not unlike some of the præcox patients. For the most part they are not so very keen to go over the dream analysis, but when they do, one notes that they easily understand the interpretation and its application to themselves; there is practically no affect in the interviews nor do they assume any radical mental change of attitude after analysis. On the contrary, it seems to go over their heads and their behavior is all quite childlike. In surprise the analyst asks them if they really understand the situation disclosed. Their response and explanations of the defect are quite all right, but they often show little deep concern about the whole matter. The whole treatment in epilepsy is therefore to set about a gradual unfolding of the educational and developmental possibilities. The plan of reconstruction is often taken as a somewhat enforced tutoring to overcome a noncompensating break in the school of life. In some of unfavorable prognosis, as in Cases I and II, an active or passive resistance or both is engendered by analysis and a petulant, injured, or bored attitude is exhibited; or the subjects assume an attitude of childlike or Oriental patience in waiting for this special *faç*-view of their disease to pass over, when they hope to resume their lives as before, with but superficial adjustments adopted. They are keen to make much ado over some little physical treatment and let the matter rest there. In the unfavorable cases the unconscious fixation on the mother, the egocentric love of passive and continuously renewed parasitic pleasures is dominant, and the main trends for correcting the personality defect are never strong and probably are too fixed and rigid; so they may never recover, either from their epilepsy or the infantilism which underlies it. They throw over the struggle, and are quite content to live with their disease and all it entails, rather than make the earnest effort so necessary to recover (see Case VI). Even in the most unfavorable cases, however, one is often surprised by sporadic attempts made to get well; and one should never cease trying to set free the libido from its infantile attachments and all that it entails. All my analyzed cases have shown some improvement. From the foregoing it is easy to trace a similarity in the behavior of the epileptic under analytical treatment with the neurotic group, especially those of the graver sort; and traces of the same occur in the milder phases of the malignant psychoses—as in the early stages of the præcox disorders.

From all of the foregoing, one is impressed that the real treatment of epilepsy is analytical, educational, hygienic, dietetic, and medicinal. The prime importance of removing the epileptics from home influences and surrounding them at once with a normal environment is only too obvious. (All through the text I assume to speak for the average youthful epileptic of fair intelligence and uprearing.) It is impossible to obtain proper and full development of even a normal youth if he goes to a college in his own city and dwells at home; how much less, therefore, is it possible to break down the infantile attachment in the epileptic neuropath under the constant associations of home influences, with those either neurotic themselves or who openly contribute

to neurotic continuance in the epileptic patient. Likewise one sees the necessity of making the environmental setting and companionship of such a simple kind that it shall fit the individual case. The developmental process can thus be properly gauged and advanced as fast as the individual epileptic is able to take on more sublimation of his libidinous energies. The type of life demanded in heterosexuality can probably never be rightly attained for the epileptic, though he may even grow up normally and rid himself of his disease. He must learn to sublimate his energies to the neighborhood realm of his emotional make up. To permit him to strive to an unattainable biological level is cruel. We can now appreciate the role which baths, packs, massage, colon irrigations, and nonprotein diet or a somewhat limited, properly balanced one, play. The whole bodily training is but a help to a better physical vigor. At the same time the physical exercises let off the storm and stress of a naturally restless and overactive libido. A sublimation into useful interesting occupations is to be aimed at. The average epileptic youth naturally hates much work of any sort, however interesting. This is said with a full knowledge of the enormous demand of normal adolescents for play. The intense fixation on the mother may, in the case of girls, be transferred upon a foster mother in the person of a nurse companion, and from such it may be carried over gradually to a group of girls, or one may replace the older nurse by one nearer the patient's age as the disease state improves and the patient demands a freer range of self help and care—the ultimate goal being in either sex to seek a sublimation upon a useful industrial life work. A residue of infantilism, which may probably never be overcome, shows that though an epileptic may fully recover, he is best excluded from the purely intellectual occupations. Compromises are sometimes necessary, however, but they should always be labeled as concessions. Religious teachings other than those of the most practical sort had best be curtailed to the minimum in epileptics. Their tendency to promote and continue phases of infantilism is all too readily taken up by these constitutional inferiors. The crudity of the religious life of the epileptic has already become proverbial.

The question naturally arises, What feeds these nuclear energies to cause them to demand a psychic and motor expression in the epileptic fit? The question is equally pertinent in regard to the hysterical convulsions and the motor tic part of an obsessive neurotic. It may be just possible that there is an inherent weakness in such individuals due to an organic *Anlage*, which later makes for an inferior psychosexual development, and that an abnormally rigid fixation of the libido to its infantile attachments is the result. If this is admitted, the remainder of the mechanism "runs by itself." The fit is then an outcropping of this developmental defect, becomes in fact a part of the inferiority of developmental functioning of such a perverted libido. While our theory may not prove the pathogenesis of the inferior psychosexual constitution of the epileptic—at least not without postulating an organically inherited *Anlage* to start with—we do contend that it is sufficiently dynamic to account for the fit and other epileptic manifestations accompan-

ing the disease. It makes the usually bad prognosis of epilepsy intelligible; it gives us more definite and certain criteria of the inferiority of the psychosexual make up of the epileptic upon whose disordered constitution the individual epilepsy develops, and it shows what the prognosis may be in any given case. It makes clearer the new hygienic training methods of treatment and points the way to an even more exact therapy. It indicates the enormous importance of the medicopsychological and pedagogic treatment of the disorder in the future, contrasted with the purely physical and drug treatment at present so largely in vogue. It broadens our essential conception of the disease neurologically and opens up new lines of inquiry, especially for the understanding of the psychic issues embraced in the malady. It also narrows the gap between the biological *Anlage* of the epileptic constitution and the fit. Finally, it shows in all probability that the immense number of the various alleged causes for the epilepsy are either spurious or mere upsetting factors. The real issues of the nature and pathogenesis of the disease are far beneath such alleged causes, and are defects as broad and fundamental as the roots of the psychosexual life itself. When such studies as are here outlined are carried forward in all directions and on all sorts of epileptics, including the so called symptomatic or organic type, we shall then be able, I hope, to remove many of the mysteries of this strange disease. Its very kinship to the neuroses and the psychoses, its susceptibility to a kindred treatment and study, argues that it, too, may surrender to final analysis.

I presume there will always remain a keen controversy between the somatists and the psychogenists as to whether the psychosexual or somatic inferiority in the epileptic is the primary departure. The controversy, however, ought not to be so vital as it would at first appear. At the most the psychogenists may be obliged to retract the argument in which they perhaps unduly urge that the psychosexual theory is the sole issue in etiology; but as no one at present knows what are the physical agents (metabolic defects, excessive or diminished ductless glandular activities, etc.) that lie back of the affective inferiority of the epileptic, we should none the less study the facts that are at hand. The same holds good for increasing our knowledge of many another psychotic disorder. This much, I believe, one may rightly contend, that the psychosexual inferiority is invariably present if carefully sought for in any frankly established essential epileptic state the pathological functioning of which gives origin and persistence to the disease. That the mechanism is broadly biological and coordinates well with what we already know of similar mechanisms in hysteria, the other neuroses, and even in many psychoses, lends additional strength to our view. The psychosexual inferiority is invariably present, whether an intellectual deficit is obvious or not, and is also present where we can detect no somatic or functional insufficiency. Finally, in the absence of proof to the contrary, we are warranted to assume that the mechanism of the fit as outlined in this study is dynamic, and that it is a rational explanation of how these libidinous forces operate in the production and continuance of the epilepsy.

CASE NOTES AND REMARKS.

The following eight cases were selected for this study because: 1. I know personally that they are examples of so called essential epilepsy; 2, they have been under my direct study and treatment long enough for me to become intimately acquainted with them; 3, they illustrate the ordinary course of the disease in epileptics at various ages in both sexes; 4, they are free from any of the so called dementing deterioration common to this disease and are not feeble-minded; 5, they comprise for the most part epileptics with minor and major attacks, they are sufficiently youthful for mental analysis and, it is hoped, may be benefited by such study as is now being carried on.

It will be noted that the manner of case presentation is somewhat unusual, in that many of the neurological data commonly given in case presentation of such a nervous disorder have been omitted purposely, in order that the history may be curtailed, and that the special point to be emphasized—the psychosexuality of epileptics—may be given its proper setting. I may say, however, that the most thorough neurological research in these cases has essentially limited them to the idiopathic group.

The case notes contain practically the details of but two fairly complete views of the epileptic individual, the personality or character (the so called epileptic constitution), and the inner motivation of the psychic development of the mental life as expressed in terms of the libidinous energies. In short, the cases are cited to show the innate defects of the emotional life of the epileptic and that which is called the psychogenic factor in precipitating and continuing his malady. The cases are not given as those which have been specially applicable for analysis, but they are taken as they come, with the restrictions above outlined in mind, solely. Perhaps as many as a dozen other similar cases might have been used as well to illustrate the special features outlined in the main text; but obviously they could not be utilized without too great tax upon the reader, whom I fear may even now become overburdened. I submit, however, that the cases prove the argument and that the thesis is maintained.

CASE I is that of an unmarried woman, aged thirty-five years, who had minor epilepsy when nine years old. The first attack came on suddenly, the patient threw up her hands in a bewildered manner and called in an anxious, frightened tone of voice for her mother. In a few seconds the attack passed away and was succeeded by severe headache and lassitude for an hour or more. There was no nausea or other symptom to bear out the earlier diagnosis of migraine, and further analysis of the subsequent history seemed to establish these episodes as irregular types of petit mal. The first distinct convulsive attack occurred one night at the menstrual period. She gave the usual cry for the mother and passed into a general convulsion; there was tongue biting, but no passage of urine. She had a similar attack the next day in which she also bit her tongue. The third attack did not occur until six months later. She was given sedative treatment from the first. Until eighteen years of age the convulsive attacks occurred quite regularly every three or four months. Thereafter they gradually increased until they now occurred every few days. The convulsive character of the attacks varied. In some consciousness is not entirely lost and she is able to execute simple commands to sit down, go to bed, etc. In these slighter attacks she may be dazed for a few seconds only, during which the pupils dilate, the face flushes, and slight convulsive twitches occur about the eyes or mouth. Others, which are now in the majority, are frankly convulsive in

character, attended by tonic clonic spasms with tongue biting. Sometimes three attacks occur in a single day. For ten years she has not been a week without some epileptic manifestation, though under the best plan of sedative treatment. There is no aura as such, but she has a premonitory feeling of ill defined nervousness and irritability. In a recent attack she was dimly conscious throughout one of the major convulsive attacks, during which she felt a "strangling, gripping" sensation in the throat. She felt her hands clench and her eyes sought to close against her will. She felt the saliva accumulate and her tongue became too large for the mouth. At the conclusion of this attack, which appeared to the observer in no wise dissimilar to the other convulsive attacks, she experienced no ill after-effects such as the lassitude, fatigue, nausea, soreness, headache, and drowsiness usual in her disorder. It often requires two or three days for her fully to recover from the attacks; she then feels quite well, but not better than before the attacks. The family history is negative aside from the fact that the father died of tuberculosis, was of a nervous temperament, and was an only child of an only child. The mother's family is very robust in all its branches. Our patient is the fourth child in a family of five, four boys and one girl (our patient). Two brothers are married and one has two children; one had a child who died of diphtheria at two years of age. All the brothers are robust.

An analysis of the personality shows that the patient stood very high in her classes and graduated from a girl's school at seventeen years of age in spite of her epilepsy. She was particularly good in mathematics; in fact she was next to the youngest girl in the class and stood highest in this subject. She had rather extraordinary power of attention and concentration for her age, and surpassed her brothers in this respect. She was not impulsive in temperament, played mostly with boys, and was considered a tomboy, yet she showed little aptitude in handling tools. She was constantly overactive as a child—"couldn't be still a moment," says the mother. She did not care for dolls and never played with them until eight years of age; even then she was never fond of them and discarded the one she possessed at ten years of age. She liked sewing and housework. She was not fond of dress. She was never self reliant in what she wished to do and very dependent upon others to amuse herself. She had no imagination and never could think of anything to do by herself. The father's death when she was twenty-five years old affected her little. Instead, she says he died so peacefully in bed that she thought it very beautiful.

The mother has always been with patient and never has been separated from her for a single night. Our patient has never had love affairs as other girls. In a frank study of her emotional life we find that she was very closely attached to the mother. Her father seemed to demand her affection, which she could not show toward him, but could feel it toward her mother whom she thought returned too little to her. In this period of loneliness at six or eight years of age, she strove to gain additional affections from her brothers; when they became engaged she was jealous and unhappy and returned with increased desire for affection from the mother. At fifteen and seventeen years respectively she had a very intense friendship for two girl friends. In both cases the girls were older, dominated her, took her for drives and picnics, insisted on paying all the bills, lavished presents upon her, and showed the usual attentions that men show toward women of whom they are fond. At each separation from these girl "crushes" she again had an enlarged affection for her mother. (One girl friend is unmarried, very eccentric and is slavishly submissive to an elderly dominating unmarried woman, spending most of her nights with her; the other is married unhappily to an effeminate man who is supported by her and whom she nags in a semi-invalid manner; she has suffered from "neurasthenic depression" since her marriage. She neglects her child and spends most of her days in going from one place to another in search of health.) Our patient now thinks that both are fine women but rather manish and queer.

At the first visit to me the patient felt nervous and "fussed up" at leaving home without the mother (a friend accompanied her). She had a great dread of what the physician might require her to do and say. As soon as she reached the consultation room she had an attack, grand

mal, with tongue biting. After recovering from this, she identified herself in a dream of the night before in which she, as a little girl, clung closely to the mother in a shopping tour. In this dream she met the first girl friend (fifteenth year affair); the friend did not recognize her, but rushed away down the street, leaving a little girl for her and her mother to care for, and the patient reluctantly brings this little girl whom she later identifies as her own child and as herself, to the physician for examination. (The second grand mal attack occurred at this point in the narration of the dream. She recovered slowly with sleep and was sent home without further analysis for that day.)

At the next interview patient was not able to remember what became of the little girl in the dream whom she took to the doctor's, and remembered nothing of the marriage or celebration that followed the visit (in the dream). In another dream she had a partial exposure of the person; the patient was knitting and at the same time wearing a large enveloping garment, a sort of jersey, yet worn next the skin. A girl entered the room and in friendly badinage teased her about it and pulled it off. The girl friend was the first girl "crush." The day before she had been thinking of the good old days before this friend's marriage and wished they might return, and that they could be as happy and intimate as before. Then, without direction or prompting, she turned to a narration of the first appearance of her menstruation. She was first informed about its nature (womanhood and sexuality) by an older girl friend. She has always hated this girl ever since. When she went to her mother for denial of the tales and found they were true in the main, she was depressed for many days. When the period appeared she tried to suppress it by cold applications. She went to bed depressed, and often cried herself to sleep, whereupon she dreamed herself a boy. A free monologue follows: "I never talked about sexuality, nor made inquiries about it like other girls. I was shocked at each new tale. I didn't know anything about it and don't care to know now (resistance, anger, and a great deal of emotional emphasis). In fact I never cared for boys nor cared to know anything about them. I like my brothers a little, not very much. My mother is sufficient to me (with elation and signs of pleasure). I now live with mother more satisfactorily and intimately since the brothers are away. She is all that is necessary for anyone. I felt a little jealous when my two brothers married, but it wasn't a circumstance to what I felt when my second girl friend married. I am still jealous of her husband, I guess. I probably was antagonistic toward father, after all. I never could see how mother fell in love with father; she never showed any affection in a womanly way toward him as far as I could see. You see (with emphasis) mother is very strong and like a man in best ways, yet I think her beautiful and womanly. I never get enough of her; I would much rather stay at home with her than go to a show or picnic. I've never ceased wanting to be petted and made much of by my mother. I don't get much petting, not near as much as I like, although I get more now that I depend upon her more. My younger brother is dearer to me now that he is soon to be married and leave home. I think I might grow very fond of him if he were to be away." The last was said ironically, with crafty, jealous expression. The patient's citation of the mother's personality and charms causes emotional reaction of a profound character. The eyes suffuse, the face flushes, the pupils dilate, the nostrils quiver and dilate, and a pleasurable animation and exaltation spread over the face, quite lovable yet childish in manner. All the series of dreams of any night gradually lead to the mother and herself being alone, after all the other guests have departed.

At the next interview she reported a dream in which she was traveling with the mother on a train. She met some friends who complimented her on her appearance, telling her that she was steadily losing weight, was becoming more angular, the neck was less full and more muscular, and the chin and jaw bones were sharp and pronounced (patient is of the thin, flat chested narrow hipped type). In free association it is brought out that she always wanted to be thin, slender and angular like her father (mother is fat and intensely feminine in manner and appearance). The patient always hated to have the bust develop, and was disgusted with women at the baths

who asked to be massaged to develop the bust and could not understand why they should do this, as she considered it gross, sensual, indelicate, and altogether objectionable.

In the attacks there is often a sense of suffocation, strangling in the throat (a sort of globus sensation), and a weight upon the chest. The strangling feeling is not really unpleasant, but is more like going to sleep. Afterward there is a sense of weakness, relaxation, a desire for inaction, and a great sense of relief, "as though something was got rid of."

In the dream, if she is invited by other girls to go to parties and the theatre, she invariably declines and stays home with the mother, much as she would like to go with them. In one dream she partly decides to go with the second girl friend (second crush) but she finally cannot find her hat until it is too late for the show.

Patient has always felt a keen antagonism to the personality of God, which has been intensified since the father's death. She objects to his being a temporal and spiritual guide.

During the past eight years the patient has grown more childish, exacting, and dependent upon the mother, sees outside company less, and has broken away from many of the girl associations. The dependence is not associated with the possibility of attacks and is even more marked when she has been free from them for a long period. She objects to friends and relatives coming frequently to the home. She manifests much irritation when the brothers "appropriate" the conversation, says it makes her nervous "to hear them talk too much," thinks they should keep quiet and listen to the mother, and is relieved and happier when they go off to business, etc.

A characteristic flight to the mother is shown in the following dream setting: Patient was going away from home (mother). She was "sorrowful" and depressed. At the end of the journey she met her father who was just as natural as when living, and went to a house with him. When asked the name of the place where she met the father she began an attack; the face flushed, pupils dilated, eyes were staring wide in front of her, the nostrils quivered, a frightened, terrified expression ensued, cloni developed about the eyes and corners of the mouth, the hands slowly closed, the body grew rigid, the jaws set, the breath came in gasps, and blood tinged saliva appeared on the lips. The convulsive movement ceased abruptly; the face, general attitude and appearance were unchanged; she slowly arose from the chair and called loudly for the mother, staggering in convulsive jerks toward the door to the waiting room where the mother was. She stamped impatiently when the door did not readily yield, and struck the physician's hand aside as he tried to restrain her. The face then showed the reappearance of cloni, the pupils were dilated and rigid, and the breath came in gasps. Still calling for the mother she lay on the sofa; the classic motor petit mal ensued until the mother came and reassured, petted and caressed her, when the attack was succeeded by the confused, automatic state which often follows petit mal. During this latter period the patient alternated in caressing the mother's hand and pressing the paper, on which the father dream was written, into the smallest and least conspicuous space possible in her left hand, while she cast sidelong apprehensive glances at the physician as though in fear he would continue the inquiry. Before she became fully conscious she asked the physician what he thought of the "hereafter" and what his religious belief was. Each attempt at analysis of this dream precipitated the beginning of similar attacks, until she begged the physician to let the mother stay in the consultation room and help her with the analysis. "I can't see why the consultation can't proceed in this manner!" she declared in a peevish tone of voice, reaching out and laying hold of the mother's hand. Later analysis brings out the intense father antagonism and her desire to cling to the mother. Then succeed several dreams of being with the mother in her bed, lap, arms, and being petted and fondled by her. The "uprising" of the attacks (aura) follow a vague sense of being "detached, separated from things, home, and mother." Needle sprays, massage, and colonic flushings ease these "threatened sensations." She enjoys these treatments and is relaxed, sleepy, and very comfortably quiet. Aside from the motor petit mal like that just described, once a month there are grand mal attacks which begin like the petit mal, but continue more severely and last a longer

time. After certain epileptogenic emotional crises had been eliminated in several consultations, she announced that when she told of these dream excursions away from the mother, she consciously felt lonely, deserted and depressed, as "though she couldn't talk any longer." After a clearing analysis she "felt freer, not lonely, and got away from things that dragged her down."

An excellent example of relatively simple symbolism and flight to the mother is shown in the following dream: Patient is brought to the railroad station by her mother at fourteen years of age (menstrual period), prepared for a long journey with a mixed society, some friends, and many strangers. She is put on the train; night soon arrives, but there is no place for her to sleep. All the others go to bed except an elderly woman whom she identifies as a foster mother. The two agree to bunk together in one large corner half lying and sitting without sleep throughout the night. Then the dream changes to her home and an unknown, rude, strong man bursts her door in and rushes to her bed intent upon a sexual assault, but she frees herself from his arms and escapes from the room by a side door which he seems not to have noticed. It leads into the mother's room which she finds empty, so she continues in her flight to the foster mother's room and throws herself into this woman's arms and thus spends the remainder of the dream in her bed in happy contentment.

After the mother attachment had been further analyzed, the following dream took place: The patient had been nervous and depressed all day at the thought that her "hateful period" was due. She dreamed of going to bed at 2 a. m. After a night of social pleasure she locked herself in her room and saw that menstruation had begun, and as she was settled for the night the door was forced and three girls (the two early "crushes" and a friend of theirs) crowded in the one bed. The intruding girls declared it was all right as they, too, were menstruating. It ended not disagreeably, although there was slight depression in the morning. Recounting the dream caused only a slight sensation aura, but no attack.

The physician's explanation of the necessity of the patient's leaving the mother and "growing up" to become independent and get a larger range and flexibility of the libido caused many petit mal attacks, a depression, nervousness, irritability, and much childish caressing and petting from the mother.

Almost all the patient's "pleasant" dreams antedate the menstrual epoch; in them she wears short skirts, walks with the mother in the park, or is being read to sleep by her, etc.; they were the "happiest days of her life." She cannot see "why women should have so many children; intercourse must be dreadful, terrible; why not let some women have children by adoption—those who don't want to get married?" Again, "May not women have children of the brain, write books, or do settlement child nursing, etc.?"

We may summarize Case I as follows: We have here an apparently typical case of grand mal idiopathic epilepsy, so diagnosed by two capable neurologists before having been referred to me, in which diagnosis I concur. The petit mal attacks and the one grand mal in my office were as classically epileptic as I ever saw. It occurs in a woman over thirty years old, who looks not more than eighteen years of age; rather masculine physical make-up, but with feminine manner and behavior, who has an attraction to her own sex and an antagonism or indifference toward the opposite sex. She has a very simple infantile and emotional life with an intense maternal fixation. She had two or three girl crushes, but no normal love affairs, was a tomboy in childhood, disliked dolls, and never lived in the childish fancy with them or fairy tales. She had the sex differentiation (menstruation) at fourteen years and has always been in conflict with it. There is no intellectual defect, and she even excelled in mathematics. She plays the subjugated passive role to the mother. She has had no real woman-

hood, being a sort of intermediate between a child and an adult woman, without imagination, rather lacking in grace and girlish charm. She has also a marked tendency to libido fixation on other girls older than herself and now is especially fond of elderly women of the mother type. Her ideal of womanly development for herself is of the masculine type. She has rather a harsh, nonmelodious speech, lacking in flexibility; the handwriting is rather coarse and of the child type. She is very energetic, egotistical, and self reliant toward all except her mother. She had a keen antagonism to the father and she wished to play his love role to the mother. She has always been of the neuroathenic type with nausea, headaches, backache, fatigue, irritability, and nervous depression. In short, she has an incompletely evolved sexuality in which there has never been any heterosexuality, but a homosexual infantilism which appears to be strongly fixed. She now plays the passive yet masculine role to the mother. The dreams show the homosexual mother attachment. The petit mal fits so far as analyzed are unconscious strivings for a mother attachment, a species of wish fulfillment or desire to return to the mother life. Probably the grand mal attacks are but cruder discharges of these same libidinous energies, which, as the patient grows up and life gives these energies no larger or adult form of satisfaction, the attacks of necessity grow more frequent and severe, as the history shows. It is obvious that the whole plan of life needs to be reconstructed along the lines of normal libidinous development in the domain of homosexuality, and if the libido is still flexible one may yet have a better prognosis in such cases. Such tasks, however, are not easy, as the individual response in analysis is shown to be restrictive. It lacks much in spontaneity as the elasticity of youth has gone in spite of the apparent youthfulness of the patient.

CASE II. The second case is that of an unmarried girl of about thirty years, who might pass for a girl of eighteen or twenty years of age. She had her first grand mal attack of epilepsy while attending school at fourteen. She had not developed well, was very thin, flat chested, narrow hiped anemic, and underdeveloped for her age. There was an insane and epileptic heredity of moderate degree in the family history. She was always strong and well as a child, but had always had headache and neuroathenic symptoms. Catarrhal laryngitis, adenoids, and constipation were given as the cause of her disease. The attacks occurred weekly when first seen two years ago. They were classic grand mal with tongue biting, but without passing urine. For one year there were no grand mal attacks, but instead, during this time, peculiar petit mal attacks occurred.

A peculiarly vivid description of the patient's attacks may be incorporated as a part of her history. The gradual and late disappearance of consciousness is noteworthy:

"I begin to feel faint and queer; then follows a kind of numbness which first comes in the wrists and then passes over the whole body. The head feels very queer, things get blurred, and then the muscles begin to twitch. It all gradually gets worse until the turning in one direction and pulling. The head seems to be turning in one direction and the eyes pulling around the opposite way; I just feel that the whole body is being twisted and tied up into knots and all sorts of things. I cannot speak or control my movements at all. Nearly always just as I lose control of myself I cry out; after that there is a sort of panting or gasping, I feel suffocated, and I have a kind of gurgling noise down in the throat. Just when it seems that I cannot stand it another second, there comes a final contortion and something seems to break; I sink into oblivion and float

off into an inexpressible relief. That lasts from ten to thirty minutes. When I first wake out of this I feel dazed and as though I were coming out of something terribly confusing, then I become conscious of the headache and all the rest. Generally I lie down for several hours, either sleeping or about half awake. About twenty-four hours afterward I begin to feel the resulting muscular soreness. Every inch of me is stiff and sore, being most painful in the back and neck. Very frequently the attacks do not go beyond the first stages of the spasm. I always try to hold myself perfectly rigid when this begins, and frequently succeed while it feels as though some mighty power deep down in me were pulling me down and in on every side, then it passes off. It is a tremendous physical effort and I feel after it passes as though I had been through an encounter with a giant."

The patient's observation about her own attacks appear to tally with the facts as observed by several of us. She usually wants to retire. She has a dread of bothering people and wants to be alone; she often expresses a desire to have her attacks by herself, "must be allowed to run her own affairs." She has a premonitory irritability and a feeling as though something were "accumulating in the whole body." Packs, massage, colon irrigations, and the presence of her favorite nurse often rid her of impending attacks. Music and religious duties "are better than bromides; it eases off, discharges the thing from coming up in my mind, and I can then easily sit on it and crowd it down and out." It seems to start in "a physical restlessness, a sort of itch to be doing something, a want to be gratified, to be petted, soothed and yet allowed to work out something for the system, then it all goes into the nerves and mind. I really must fight hard when it gets into the mind; then it seems it must come out. I must be rubbed, beaten, and have some sort of bodily or nervous rhythm to soothe or let the feeling out. The attacks discharge something in the mind and body, especially in the mind and head. It is never entirely free. The tension inside is never fully released, even by two attacks in twenty-four hours as has occasionally happened. But in a week after the series of attacks it gradually subsides in my soul and mind, and I am nearly normal again." The preceding is given at length, as it is a common epileptic description of the pent up nervous force, in terms analogous to the description of the intense repressed libidinous feelings of the sexually continent individual.

To return to the personality development: Our patient learned easily, much more rapidly than the others of the family. She stood especially high in mathematics, and frequently skipped the final examination because her class standing was so good. She was poor in English and could not learn languages. She was a very practical overactive child, not very resourceful, and had no imagination. She disliked dolls and never enjoyed fairy tales. She always seemed reticent about herself, rather constantly shut in, constrained, and never expressed her views about things. The few times the emotional life was shown at all freely as a child, and during early girlhood it was found to be of a very simple child pattern, superficial but sensible. She followed her mother's type of matter-of-factness, and closely resembled her in manners, speech, etc. The patient was always at bottom opinionated, self reliant, and conceited. She cared little for dress, never cared for dainties, nor longed for sweets. She stood pains and aches "like a major." She was constrained in conduct, but not really timid or shy; reserved, yet wanted to be a leader. Being the youngest girl in the family she was treated like an only child. She was rather blunt in manner and speech, and while she liked rough games at play she was not good at outdoor sports requiring agility and dexterity. She was rather rigid in her likes and dislikes and made few friends. She was not demonstrative, yet was firmly attached to her mother from whom she demanded much affection, which was not always given. She was precise and much committed to routine. She has always been passionately fond of music. She was very easily frightened of the dark and always fainted at the sight of blood, yet the mother states that she was really "cold blooded." Good and bad news affected her little. She never had special friends and not even the slightest love affair. She never cared to read novels and cared little for children. She often says her mother is husband, wife, and child. The mother says the patient has been a long time growing up and is little more

than a child now so far as emotions are concerned. She has never planned for the future. She can do the executive work of the household best and likes to run things in the house. She has had a conscientious but superficial life. She now takes entire charge of her medical treatment and likes to keep the strictest account of all the bodily processes (such as digestion, stools, etc.), whether enjoined to do so or not. The dream notes are copious and profuse. It is fairly easy to indicate when attacks are to come by the bewildered, confused, and unsuccessful outcome of the dream setting. It is always possible to map out what sort of a day will follow the dream episode. When the wish or striving in the dream is not fulfilled, the morning will be filled with feelings of lassitude, headache, backache, and stomach or intestinal distress, gas, constipation, etc., and this proves to be just in proportion as the wish is not elaborated and carried to a satisfactory end. The dreams are always concerned with women; very rarely a man appears; the mother takes first place, then the older sister, and finally the once prominent favorite nurse. There is always a social party of girls in high glee and frolic, and the patient is in intimate personal contact with them; they sit on her lap, caress her, and make her gifts. The men make some slight advances to which the patient is usually adverse or more frequently indifferent, and they simply vanish from the stage of the dream. When mother and girls are both in the dream the girls remain for a time, but the mother is the last to go. In all the five dreams the patient makes her escape and so do most of her girl companions; usually a few men are lost. Occasionally the physician is included without apparent affect either in the dream or in its narration. The patient is always the centre of the dream scenes. She is always efficient and usually straightens out all differences. It is decidedly unusual for the patient to have dreams in which she herself is not quite all right, socially and otherwise. Occasionally old ladies accompany her or she visits them and they are transformed into babies that belong to her, though she is always unmarried. She lives with girl friends in an apparently asexual relation, the patient playing the active role. There is never a male assault; the men conduct themselves as though without emotional feeling, "like gentlemen" in the words of the patient.

A rather unusual type of dream was the following: Patient went to her room; a young man was having an epileptic fit, but it changed into an elderly woman whom patient usually calls Mother M. She was leaning over and finally lay on the patient, who could distinctly feel the muscular jerks of the convulsion and the oppression of her body weight on her chest. Then it seemed the attack was transformed to our patient, that the first part of the dream was a dream, and that she was now alone and having an attack all by herself. She was trying to take some medicine, but the jerks were so engrossing and hindering that she couldn't take it; she called for her sister, who didn't appear until the jerks ceased. She thought she remained fully conscious through it all, thought it really was not bad; in fact she thought she could manage them all hereafter by herself. She felt rather elated and satisfied about the whole matter. The dream was so vivid and had been handled so satisfactorily that she was not at first concerned on waking to make sure whether she had not really had a fit. She found herself lying quietly on her back with arms and legs spread out. It is highly significant that there was only a slight but intermittent sharp intestinal pain far down in the abdomen from gas accumulation. The frankly sexual symbolism of the fit hardly needs comment, except to say the act was initiated by a heterosexual subject quickly transferred to a homosexual one (mother) and finally continued for a longer time as self-perpetuated in an autoerotic act. The satisfaction of the narcissistic state over all the other methods epitomizes the whole case throughout. The excellent state of mental and physical health, absence of neuroathenic symptoms, etc., for several days following showed clearly that the unconscious discharge by this dream had been no small one. Indeed, the patient said, had she really had a severe attack the "nervous atmosphere" could not have been more completely or satisfactorily cleared.

In another dream the patient has a mild attack to frighten off some girl friends who are to spend the night with an older and adored sister whose personal attentions she herself desired to appropriate. The attack, however,

fails of complete climax (thought she was conscious throughout), as the desired end is gained before the "threatenings" are any further advanced than to postpone the girl party and to get the sister partly to carry her home. However, the dream release of the unconscious libido in this manner is so great that she really fears an attack (very pleasurable) and she awakens with feelings that possibly she ought not to permit it to go further (similar to one's dreaming of wanting to urinate and trying to do so, yet having a vague feeling that after all one is not at the toilet; the same is even more pertinent in the censor's veto to a seminal emission under inopportune and forbidden circumstances). She then awoke and the partially liberated and unconsciously generated attack proceeded in the half conscious waking state nearly to the real loss of consciousness. The muscle spasm in arms, neck, and calf muscles persisted for several hours at quarter hour periods with diminishing intensity. By noon the attack was well "pushed back where it belonged," and the afternoon was free from threatenings. There was, however, a "vile" headache, a depression, pain in the small of the back, lassitude, irritability, and a sense that the tension had but increased. She felt, however, as though the attack must come soon having been once initiated and thus having been so summarily checked. A real attack occurred in a perfectly classic manner with tongue biting and all the postparoxysmal syndromes of a grand mal fit an hour and a half after going to sleep the same night. "A confused but irrelevant and not unpleasant dream" preceded it, in which it appeared perfectly proper in time and place for the patient to have whatever was to follow (an autoerotic libidinous discharge) under the mask of an ordinary epileptic fit. Further examples of allotropism of fits and sexual acts cannot be given space here. Suffice it to say that not a few instances might be cited in which "attacks" in other nonepileptic acquaintances in the dream are exemplarily aborted by massage, colon flushings, cathartics, packs, etc., the favorite "sedative" remedies of our patient, the talismanic value of which the patient urges on many another nonepileptic friend for slight ailments.

The manner in which a wrong transference may occur is shown in this patient after her mother had left her far away from home to carry on her treatment by herself. The patient immediately picked up another "girl crush" from among the patients at the sanitarium; this girl our patient had had little to do with while the mother was immediately at hand, but now the patient drove, walked, and played games with Miss A., received and gave the petting childish caresses of the usual kind seen among some young college girls (both girls are really in middle life). Her girl object was No. vii of this study, who is a dark, energetic, forceful girl of rather masculine type of build, of sufficient means to afford all sorts of luxuries with which she loaded our patient. Within the week after the mother left our patient had restless sleep, "bad dreams," as she termed the steady recurrence of Miss A. (the love object girl) in the dream setting. Finally at the end of this period she had the following climax dream: The mother under the guise of "Mother N.," previously mentioned, keeps asking if she might not be of service to our patient and inquired if she, Mother N., could stay with her, etc., but the patient put away the attentions of this person in a definite and decided manner and sent the mother out of the room "rather heartlessly," as the patient thought. Then the dream changed and a Mr. H. whom she has more than once identified with the devil—an intensively predatory heterosexual young man—asked our patient and Miss A. if they did not intend to make a special party lunch for one of their (the two) interesting walking expeditions. He seemed to look cynically and in a suggestive manner at the two girls, "devilish," the patient said, but they disregarded the manner in which it was said and began with song and laughter to engage most intimately in making cakes, brewing tea, making lemonade, etc., for the feast. In the midst of it all our patient thought with a certain twinge of conscience, "oughtn't we, or rather I, to ask the mother if this celebration is all right?" but finally the patient decided it didn't matter, she intended to do it anyway, and the gaiety and festivity went on. No one was to be at the party but the two girls. Just at the most interesting moment, while they were each alternately biting into a cake they were sharing together, our patient awakened with the beginnings of an attack which threat-

ened to "drive her unconscious." (In the regular sequence of seizure events for the past year none might ordinarily have been expected in two months at least.) In the waking state the patient succeeded in consciously repressing the attack, the sensations of which gradually subsided after great effort and fell asleep at 10 a. m. with a depression, headache, and increased nerve tension. Just as she dozed off to sleep "something very strong and overmastering came up in the mind and overpowered her" and she awakened just as the attack was at its climax. It was not a severe one, but characteristic of the patient's severer sort. The attack having passed, the patient still felt "it was not really out of the system completely." The remainder, including the neurasthenic symptoms, was finally cleared out of the way entirely by a colonic flushing, pack and massage, and a quick acting saline laxative. The following night she "slept soundly and restfully" for eight hours without restlessness or waking and had no disturbing dreams. In fact a "full discharge" in an attack always gives her "a fine, quiet, restful night without dreams" the night following such a fit. It hardly seems possible for one not to see in this episode the essential urging of the dream setting toward an unconscious discharge in a fit. The patient in a brief analysis saw it, and with little resistance has made her plans to put an end to such a harmful association.

The vicarious ways in which a sublimation may be encouraged to take the place of the fit is worth noting in this case as a suggestion one may follow in the treatment of similar cases:

Our patient had received a letter from the favorite nurse (now long absent) and was very much elated and delighted. The headache vanished for several hours and she felt better than she had for a long time. The next day she replied to her letter at great length and with much satisfaction (the nurse herself wrote only at intervals of months). The same night she had a "perfectly magnificent dream" of the nurse's visit to her, "not that I needed her professionally, for I was nearly well," but she wanted a long and intimate chat with her. The dream was all too short and she was sad at waking but felt even better than on getting the letter from the nurse two days before. As the day wore on she grew depressed, felt alone in the world, and "felt sorry for herself." Nothing suited her; her shop work was painful to endure and the association bored her (at love's absence). She then thought she was to have an attack, went by herself and "had a good cry" yet felt keyed up. At this point she remembered her music and two or three love songs she much liked. She got a group of "congenial souls" together and played and sang off the "burdens of the world." The threatenings of an attack fled, she was freed from the "tense inner feelings" and went to bed happy and slept well *without* dreams for eight hours.

To summarize Case II, we have a middle aged, unmarried woman of infantile emotional make-up, rather shut in type, who is indifferent and even antagonistic to the opposite sex; who is firmly mother attached, and, secondly, to a lesser degree, elder sister and nurse attached; who has many of the physical and mental stigmata of the homosexual, who has not the slightest intellectual defect, and who in further dream analysis is shown to possess a predominant narcissism (autoerotic) and is especially analerotic. Soon after the onset of the menstruation she develops an apparently idiopathic grand mal epilepsy, but which in the light of our analysis proves to be but grand mal and petit mal attacks of varying degree, in which the libidinous discharges are largely of a psychic masturbational character. If one were to omit the manner of occurrence and the aftereffects of these fits and even the preliminary and accessory symptoms and sensations in the attacks themselves, giving instead the episodes in terms of their true libidinous designations, one would hardly detect any improper substitution.

A few words regarding the effects of the general treatment and the analysis in particular: When first treated, the patient was so thoroughly saturated with the prolonged treatment by bromides that a year's use of the so called "elimination method" of treatment was necessary. While the general results by such a plan of treatment were very satisfying to all concerned, there was substituted and is now all too firmly fastened upon the patient a routine treatment of packs, massage, cathartics, and colon flushings that are too thoroughly adhered to in spite of a very diminished need. Only too persistent are the habits of keeping minute daily notes of bodily processes and secretions which the patient still continues to feel are the *really* important principles of the treatment; she now feels that an attempt to understand the inner lack and need of an emotional readjustment on her part is a superfine and unnecessary procedure. Even when the analysis makes clear the very long standing need of "growing up," she shows little effort to make good the defect—which, of course, is the old glaring fault in treating epileptics. Then, too, in common with many other similarly afflicted individuals who possess a relatively simple and rigid libido, she asks, times without number, for a system to grow up by; one might think the analyst had not done his work properly or thoroughly if it were not for the fact that individuals so treated are interspersed with others of a simple psychoneurotic type who, side by side with such patients, make for a satisfactory cure. One is impressed that this patient shows, in common with so many epileptics in being "under-vitalized" as well as irregularly sexually and emotionally developed, that the epileptic state in such is but the sum total of normal reactions in an inferior biological type. Various plans of treatment based upon the ductless gland and internal secretion theory to make up the lack of proper biological development have been tried in these cases without success. One sadly admits that empiricism in this sort of therapy is little short of charlatantry. The patient and her relatives believe she has been about half cured and they look forward to still greater results under a plan of sublimation therapy which has been detailed at length in the general text, the final value of which will be reported on at some future time.

(To be continued.)

Treatment of Sciatica.—F. X. Dercum, in the *Therapeutic Gazette* for April, 1914, lays stress on the importance of rest in the ordinary acute case of sciatica. The patient should rest in bed and be allowed to place the limb in such position as he finds most comfortable. This simple expedient has proved successful in a majority of the author's cases. In some the limb should be fixed in a splint. A long external splint, extending from the axilla to below the heel, or an anterior splint, may be applied, with the thigh and leg slightly flexed. Instead of a splint, sandbags may be used. As for drug treatment, Dercum administers sodium salicylate, ten to twenty grains (0.6 to 1.2 gram), together with sodium bromide, twenty to thirty grains (1.2 to 2 grams) every four hours.

Abstracts and Reviews.

STRUCTURE AND RELATIONSHIPS OF THE ISLETS OF LANGERHANS.*

Criteria of Histological Control in Experiments on the Pancreas.

BY PROFESSOR R. R. BENSLEY,
University of Chicago.

Physiologists and pathologists have given but scant consideration to the anatomical study of the several glands of the digestive system which are possessed of ducts and external secretions, such as the salivary glands and the pancreas. It seems certain, however, that the closer anatomical study of these organs would yield invaluable information upon which to base both physiological and pathological studies. In the case of the pancreas in particular has there been gross neglect of the anatomical phase of the problem. Ever since the discovery of the existence of the islands of Langerhans, there has been much speculation as to their functions and the changes to be found in them in disease. These speculations have given rise to the most divergent opinions, and the observations of one have been directly contradicted by those of another. This lack of harmony in the results of physiological and pathological studies is primarily due to the fact that the methods of study employed have not given sufficient consideration to the anatomical problems involved.

The earlier work gave rise to two schools—the one holding that the islands were composed of cells which were capable of being formed from the acinous cells when the need for the transformation arose, the other that the cells of the islands were specifically differentiated and had a special function of their own. The experimental methods employed in these studies, even though controls were used and numerical results were obtained, were fundamentally faulty, largely because the characters of the cells in the islands were ill defined. No positive features of these cells were observed which could be used for their differentiation, but, on the contrary, they were recognized by the negative features of their lack of the typical granules found in the acinous cells and by differences in their grouping. There was not even unanimity of opinion as to whether or not the islands were possessed of ducts. These islet cells should be defined upon the basis of their specific microchemical reactions, the morphology and chemical constitution of their cytoplasm and its contained granules, and upon a complete cytological basis, etc. As yet we are not in a position to fulfill all these requirements, but some of them may be answered so definitely as to give us an accurate means of studying them.

Experiments were conducted in the attempt to destroy all of the cells of the pancreas in living animals except those of the islands of Langerhans, and to study both the physiological changes thus produced in the organism and the anatomical and pathological alterations found in the islands themselves. From these studies different observers obtained different results; some contending that the number of

the islands increased, some that the number decreased, others that there was no change, and still others that the whole pancreas was destroyed by the experimental methods employed. By more adequate modern methods we are now in a position to harmonize in some measure all these conflicting views.

Lane, one of my students, conducted extensive experiments on the possibility of elaborating some method for the differential staining of the several types of cells found in the pancreas and of devising methods of differentially studying the fixation or solution of the several forms of their contained granules. Among other results he was able to prove the presence in the islands of Langerhans of two different cells—the A cells and the B cells—which reacted characteristically to his microchemical methods. He found that all of the zymogen granules of the acinous cells and the granules of the B cells were soluble in alcohol, while other granules resisted this solvent. Following up Lane's preliminary work, I have found, together with my associates, that differential vital staining of the several anatomical portions of the pancreas can be readily accomplished by one of several methods. Among the most satisfactory is that which makes use of certain of the reactions of the complex dye called janus green. By reduction this dye is converted into saffron red, and this, in turn, is reduced to a colorless compound. By appropriate fixation methods the reduction can be checked at the desired stage of its progress. Ammonium molybdate, potassium iodide, etc., accomplish this purpose. The vital staining is accomplished by the injection of the dye directly into the aorta, after which the animal is killed by bleeding and the fixation of the staining completed. By such means, as well as by the use of certain other dye stuffs, perfect anatomical differentiation of the duct system, the acinous cells, and the islands of Langerhans is secured. Every one of the islands is stained a bluish green, while the entire duct system and the acinous cells take a brilliant red. The duct system can be still further differentiated by appropriate dyes from the islet system.

Using combined methods of vital staining, we have been able to conduct precise studies of the relations of these different portions of the pancreatic tissue in animals, and have been able to use the whole organ instead of having to rely on the defective methods of reconstruction from sections. Exact counts of the number of islets in the pancreas of an animal have been made, and these counts can be compared with those obtained in the pancreas of an animal after the ducts have been ligated in order to destroy the cells of the acinous system.

From such studies we have found that, for any given animal species, the number of islands normally present in one mgm. of the tissue is quite constant for the whole organ, although different portions of the gland give widely divergent counts. An elaborate and complex system of small and larger tubules has been found throughout the organ. These tubules are composed entirely of undifferentiated cells. Under varying conditions these undifferentiated cells are capable of producing either acinous cells or new islands of Langerhans. During their transition from their undifferentiated state to one or the other form of specialized cell, it is difficult to deter-

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, February 27, 1915.

mine which cell they are destined to produce. These transitional cells have been found by others, and have led to the contention that the islet cells could be formed directly from the acinous cells, as well as to the opposite view. These new findings now harmonize the divergent views.

There was, up to recently, no agreement as to whether or not the islets had ducts and capsules. Our newer methods of differential staining enable these questions to be answered definitely in the negative. Although the ducts may seem to pass directly into some of the islets, they never are in direct communication with them, always being separated by a layer of undifferentiated cells. There is no capsule about the islets, but their position may be such as to give the impression of the existence of such a capsule in some instances.

Experiments carried out in animals in which the ducts of the pancreas were ligated, have given some very interesting results. In the first place, it was found that in many cases the ligatures cut through and the duct connection with the bowel had been restored. In other cases autopsy and injection showed the presence of other ducts which assumed the functions of the main ducts. Where the ligation was complete and permanent, it was found that there was an early degeneration of all the acinous cells and of many of the smaller islands of Langerhans. A little later, some regeneration of the acini was observed, but if the occlusion remained complete these ultimately totally disappeared and were replaced by fat and scar tissue. There was also observed a marked regeneration of the islands of Langerhans and a considerable increase in their number.

During the early stages following the ligation of the ducts, while the degeneration of most of the smaller islands was going on, the animals showed glycosuria. When, however, the new islands had been produced this disturbance of carbohydrate metabolism declined and ultimately completely disappeared. The regeneration of acini and of the islands of Langerhans both took place from the cells of the small duct network already described. In addition to the reduction in the number of the islands during the early period, and the associated appearance of glycosuria, it was observed that the typical granules in the islet cells were greatly reduced in number or almost completely disappeared. From these observations it seems that the cells of the islands are directly concerned in the maintenance of normal carbohydrate metabolism and that the granules contained in their cytoplasm are composed of substances directly concerned with their internal secretion.

The whole problem, however, is not solved by these observations, and I hardly feel that they are as yet sufficiently conclusive to warrant a final answer to the question of the role of the islands of Langerhans in the metabolism of the carbohydrates. It seems best, in the present state of our knowledge, to regard the antidiabetic function of the pancreas as the sum of the activity of all of its units. An important problem, especially from the point of view of the treatment of diabetes in man, which still awaits solution, is that of the self regulation and regeneration of the several portions of the pancreatic tissue after disease.

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLV.—What is your experience with high frequency currents in the treatment of tumors of the bladder? (Closed.)

CLVI.—What is your experience in the treatment of pellagra? (Answers due not later than March 15th.)

CLVII.—How do you treat diarrhea? (Answers due not later than April 15th.)

CLVIII.—How do you treat heartburn? (Answers due not later than May 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best paper submitted in answer to Question CLV was awarded to Dr. Clarence G. Bandler, of New York, whose article appeared on page 466.

PRIZE QUESTION NO. CLIV.

THE TREATMENT OF PROSTATITIS.

Dr. David Lazarus, of New York, states:

Acute prostatitis.—Acute prostatitis is usually accompanied with signs and symptoms of bladder irritation, shown by the feeling of pain, tenesmus, and difficulty while voiding urine; there may also be a feeling of fullness and heat in the rectum and a desire to defecate; there may also be some bulging in the perineal region, while upon rectal examination a large bulging, tender, and fluctuating mass may be disclosed. Incontinence of urine may be a marked symptom in addition to the constitutional signs of infection, viz., fever, chill, sweats, headaches, pains in the back and legs. The patient should at once be ordered to bed, put on a very mild liquid and noncaloric diet and treatment of his prostate be directed; if caused by stab wounds the treatment calls for immediate surgical interference, in which case you cut down upon the prostate, secure the bleeding points, and treat the prostate in accordance with the amount of damage done—either complete removal, posterior urethrotomy, or simple packing; drainage should always be freely employed; then follow this with the ordinary postoperative treatment.

When the prostatitis is due to gonorrheal urethritis, all injections into the urethra should immediately be stopped, the patient put to bed, kept quietly upon his back, not even being permitted to leave it for the purpose of urinating or defecating. Bed pan and urinal should always be used, sponge baths should be given, and a mild diet ordered. If necessary, catheterization should be performed, and when done should always be carried out under the most strict aseptic principles. Salts or any of the saline waters should be administered daily or oftener as indicated so as to keep the bow-

els in a very free and loose condition. In this way all irritation and pressure upon the prostate gland is removed and the inflammation subsides sooner. A hypodermic injection of morphine, alone or combined with atropine, may be given if the patient is in severe pain. If the prostatitis is of a very mild degree, begin the use of a rectal psychrophore for several hours at a sitting, three times a day, with irrigations with either very hot or very cold water. However, if the prostatitis is of a more severe nature rectal suppositories of extract of hyoscyamus, one sixth to one half grain, either alone or in combination with extract of opium, one eighth to one half grain, should be prescribed. Internally large doses of the following mixture should be administered and water freely taken.

℞ Tincturæ hyoscyami, ℥v-xx;
Potassii acetatis, gr. x-xx;
Aque distillatæ, q. s. ad..... 3j.
M. ft. Sol. Sig.: Every three hours.

'As soon as the urethral discharge reappears, the treatment may be reduced; the internal drugs and remedies may be given two or three times a day; but by all means do not discontinue the treatment too readily although the temperature may have reached normal. The discontinuance should be gradual. Then urethral injections of antibleorrhagic drugs may be ordered.

If, however, the case, instead of subsiding, goes on to abscess formation, then only one kind of treatment must be given, namely, incision and drainage. This may be done either under a local anesthetic or a general narcotic. After incision and drainage, the case should be treated as a purely surgical one. In all forms of acute prostatitis, be the cause what it may, I usually administer seven and one half grains hexamethylenamine in a gobletful of water, three times a day.

Chronic prostatitis.—The treatment of chronic prostatitis depends on whether it is due to a simple hypertrophied condition, from sexual excess, unsatisfied desires, or advanced years; or to chronic gonorrheal infection, or tumor formation, or tuberculosis, or other chronic constitutional disorder.

If it is due to gonorrhea, it is of the utmost importance to direct attention to the urethritis causing the trouble. The treatment may be carried out with either the Kollman urethral dilators, the Keyes-Ultzmann syringe, or sounds. In passing any instrument into the urethra, it is best thoroughly to irrigate the canal, both before and after, with a solution of silver nitrate one in 4,000, or with potassium permanganate one in 10,000. Hand injections of protargol, 0.25 to 0.5 per cent., or argyrol five to fifteen per cent., or other organic silver solution should be ordered three times daily after urinating and retained in the canal for from five to fifteen minutes. Internally hexamethylenamine, sodium benzoate, or oil of sandal should be administered and large quantities of water drunk, and careful attention directed to a daily movement of the bowels.

Prostatic massage should be given every other day and on the alternate days the rectal psychrophore should be used at home with very hot water. The use of the high frequency current, or of the

static current, with the use of the rectal electrode, frequently aids in bringing about a much more hasty and rapid result. This electrical treatment should be given every other day in place of the rectal prostatic finger massage. Frequently in the more chronic cases the use of the gonorrheal mixed vaccine (gonococci, streptococci, staphylococci plus the colon bacillus) will help greatly in bringing about a cure. I have used this vaccine successfully in several cases. The diet, though not as strict as in the acute condition, should exclude irritants of all nature (alcoholics and condiments). Sexual abuse is forbidden. It is advisable to give the syrup of iron iodide, in combination with the hypophosphites or codliver oil or olive oil, as the stomach of the patient will tolerate, or even Basham's mixture. Body baths from tepid to warm are a good adjuvant to the foregoing treatment.

If due to tuberculosis, the treatment of chronic prostatitis resolves itself into the specific and symptomatic. For specific treatment we give creosote, hypophosphites, syrup ferri iodidi, codliver oil or olive oil, or use of tuberculin. Outdoor life and the general care of health are necessary parts of the treatment. If the case is one of primary tuberculosis of the gland, extirpation should be the treatment, and the sooner, the better. Symptomatically, the prostatitis is treated as the signs of the trouble present themselves. Often the instillation of argyrol or some guaiacol solution will tend to alleviate the trouble.

Frequently a large prostate will be of a gummatous character and will readily yield to salvarsan and to hypodermic injections of mercury, in addition to the internal administration of potassium iodide.

Cancer, cyst, or stone calls for immediate operative interference as soon as the diagnosis is established or even suspected. If the cyst or stone can be reached through the endoscope, local treatment through this instrument may suffice; otherwise, as in the case of cancer, prostatectomy should be resorted to. The operation should be the one most suitable to the patient and the case, either suprapubic or perineal.

Senility or neglected chronic conditions call for treatment, which may be either, 1, nonoperative, which consists of the treatment of the accompanying stricture, prostatic massage by finger or electricity, use of psychrophore, with very hot douches, tonic treatment, regulation of life and exercise, care of bowels and the administration of hexamethylenamine, salol, sodium benzoate, if the urine is alkaline, or of potassium acetate, if the urine is acid; 2, operative, which is usually called for in elderly people, especially those addicted to the use of catheter life, which may lead to an ascending infection.

Dr. Leo L. Michel, of New York, writes:

Acute prostatitis.—Complete rest in bed is essential; no sexual excitement, bland diet, stools open and loose; copious drinking of water affords great relief to the pain. As to drugs, use urinary antiseptics; of these hexamethylenamine five to 7.5 grains every four hours in a glass of water acts best. Alkaline diuretics are very useful. Opiates are some-

times necessary for the relief of the pain and to induce sleep, best given in suppositories as:

- R Extracti opii,gr. ss;
 Extracti hyoscyami,gr. $\frac{1}{2}$;
 Camphoræ monobromatæ,gr. iij;
 Olei theobromatis, q. s.

M. Sig.: Use when necessary.

Sometimes it is necessary to give morphine hypodermically.

Heat affords great comfort to the patient and aids considerably in the reduction of the inflammatory processes, applied in the form of hot sitz baths, hot applications directly to the perineum, hot rectal douche through Kemp's or Frank's tube or better still the psychrophore of Levine (in this country known as Van der Poel's). The instrument is so inserted in the rectum that it lies directly against the prostate gland, connected with an irrigator containing water as hot as can comfortably be borne; it is really remarkably how effective the results are. Treatments with the psychrophore should be given for as long as the patient can comfortably stand it. The heat for the psychrophore may be derived from the d'Arsonval current with good results. Violet rays and the high frequency current I have not found of much value in these conditions.

Protargol 0.25 to 0.5 per cent. solution I have found to be the best of the gonococcocides, and it should be used. In catarrhal prostatitis or where the gonococcus is absent, the irrigating fluid should be a mild antiseptic, as mercury bichloride one in 20,000.

I have also found that a posterior irrigation of novocaine (one per cent.) dissolved in saturated borac acid solution succeeds in controlling the tenesmus when no other drug is of service.

Posterior irrigations and massage of prostate.—Patient first voids his urine; posterior irrigations should always precede and follow prostatic massage, and I invariably use local anesthetics. Two drams of one per cent. novocaine solution is injected into anterior urethra and gently manipulated back into the posterior and in a few moments we can proceed with our irrigation very easily and without pain.

For irrigation I prefer the Janet syringe of 150 c. c. calibre, with Wheeler rubber tip attached. I fill syringe with the fluid, and this is gently thrown in the bladder. Patient voids this fluid and is now ready for prostatic massage.

Patient stoops forward, the buttocks well drawn up; the physician's left hand is placed over symphysis, right index finger covered with rubber finger cot is inserted after lubricating, in rectum. Outline size, shape, and consistence of prostate, then massage with a very gentle circular stroke from lateral to central lobes and from above downward. This should be most carefully performed in acute prostatitis, and from six to eight gentle strokes of the finger are required. The expressed fluid should be obtained upon a slide and careful microscopical examination made, for our treatments are governed by these examinations. A normal prostatic fluid means we have cured the prostatitis and further treatments are unnecessary. These posterior irrigations and prostatic massage are given about three times a week, and when the gonococcus is present

in the secretion the patient is instructed to use two drams of a 0.5 per cent. protargol solution three times a day, injected with a small hand syringe (Bronx, Hanover, or Goodyear) into the anterior urethra and held there for about five or ten minutes. He first voids his urine.

In a five years' experience private work and as chief of Bierhoff's clinic at West Side German Hospital, I may say we have not had more than six cases wherein we could not resolve the pus formation with the foregoing treatment. We do rarely find it necessary to resort to surgical measures for the evacuation of pus in prostate.

In conjunction with local treatment I have obtained good results from vaccines. In fact, the vaccines (antigonococcic) are only of value in acute gonorrheal rheumatism and in the complications of acute gonorrheal posterior urethritis.

The treatment for chronic prostatitis is practically as outlined for acute prostatitis with much more latitude for muscular exertion. Hexamethylenamine, hot sitz baths, psychrophore of Levine, diet, sexual rest, and posterior irrigations and prostatic massage constitute the chief treatment. The massage is more vigorous and applied longer than in acute conditions, but should cause no pain. When the expressed prostatic fluid shows but a few pus cells and is aseptic, the Kollman posterior irrigating dilator through which is injected a one in 20,000 silver nitrate solution may act serviceably in the expression of the mucous plugs of the prostatic ducts. These chronic prostatitis are often difficult to cure. They take time and great patience, but they will recover if the time is given and proper treatment applied.

Dr. S. St. John Wright, of Akron, Ohio, advises:

First be sure of its presence. Protected digital exploration of the lobes of the prostate and of the seminal vesicles reveals their size and their sensitiveness. Hypertrophy being found, and tenderness, one must learn whether the internal meatus is normal, or hardened and hindering urination. If free and of normal calibre, the bladder muscles may be atrophied and weakened; or inflammatory conditions near by may inhibit muscular contraction. The mucous lining of the bladder or urethra may lack normal sensitiveness. The spinal centre may have lost control of the detrusor apparatus. One must not forget the results of rectal coprostasis with its bacterial migrations, toxic absorptions, and reflex inhibitions.

Prostatitis is very common. Its skillful treatment may banish persistent pains in the lumbar muscles, sciatic nerve, hips, soles, thighs, or calves. Enlargement and irritability of the prostate lobes is a result of an unequal struggle between the healing powers of the involved structures and fluids and the invading influences, microbes and toxins.

The object of our intervention is to strengthen the resistance and weaken the enemies. The rectum must be kept in a sanitary state. The longitudinal and circular musculature of the rectum responds to the faradic current applied by a bipolar electrode within the cavity. Iodine may be ionized by the galvanic current into the prostate gland from a metal rectal electrode wrapped in absorbent cotton

wet with a solution of potassium iodide and lubricated with jelly—the negative pole being internal and the positive on the lower abdomen or groin; dose, three to twenty milliamperes for ten to thirty minutes, thrice weekly. The glass vacuum electrode for the high frequency current may be used on alternate days in the urethra and rectum. The violet light rays are destructive to bacteria, while electric energy is appropriated by the muscles, glands, and fluids adjacent. Hexamethylenamine may be used also, being swallowed in solution; dose, seven grains, thrice daily. Röntgenization illuminates the gland with benefit. Radiation and the high frequency currents intensify and energize the oxygen of the blood with benefit to the emunctory processes. Torpor and sluggishness of secretion and elimination are thus largely overcome.

Curves in the prostatic urethra may be corrected by the properly insulated urethral galvanic negative electrode carrying three milliamperes for five minutes, thrice weekly. This drains the bladder and hastens reduction of the adenoma. It is a pity that such therapy is not taught in medical schools of this country instead of being ignored. It costs too much and requires too much time—or is so considered. But the results, especially in France, Germany, and England, are brilliant.

[Excellent contributions to this discussion, which we regret not to have sufficient space to reproduce, were also received from Dr. Frank Bortone, of Jersey City, N. J.; Dr. William Rankin, of Keokuk, Ia.; Dr. Albert Comstock, of Brooklyn, New York; Dr. D. Zuckerman, of Brooklyn, New York; and Dr. Carleton A. Bates, of Hillsdale, Mich.]

Therapeutic Notes.

Treatment of Nocturnal Incontinence of Urine.

—Cahier, in *Presse médicale* for May 6, 1914, reports the results obtained in enuresis by injections of normal saline solution into the subcutaneous tissues in the perineal region. The patient being placed in the lithotomy posture and the skin aseptized with diluted tincture of iodine, an injection is made at a point half way between the root of the scrotum and the anus, on each side of the midline, one cm. from the latter. The fluid should be injected as quickly as possible in order to form, on either side, a large globular elevation containing, in the adult, eighty to one hundred grams ($2\frac{2}{3}$ to $3\frac{1}{3}$ ounces) of fluid. If a fountain arrangement is used to inject the saline solution, the receptacle must be at least two metres (6 feet, 7 inches) above the point of injection, to yield the required pressure and rapid entrance of the fluid into the subcutaneous tissues. The object of the treatment is to exalt local sensitiveness by drawing upon the nerve filaments, this in turn reacting upon the neck of the bladder or the striated muscle of the urethra. The procedure occasions but little discomfort and does not oblige the patient to leave off his ordinary occupation. Generally, a single injection of the quantity of fluid mentioned on each side is sufficient. Where another injection is subsequently required, 200 grams ($6\frac{2}{3}$ ounces) can be administered without harm.

Of thirty cases (all in adults) in which this measure was applied by the author, eighteen were cured by a single injection, and six by two or three injections, while in the remaining six a cure was not obtained. Bergasse cured twenty-two patients—eighteen with a single injection—with the same measure. Gary cured five out of seven cases, and Lapasset five, while Bercher was unsuccessful in two cases, and Vanderbosche was completely successful in only one out of ten cases. Gaulejac administered about 150 injections in children with enuresis, and reported to the author that he had had successful results in about half the cases, though in some recovery was not permanently maintained. On the whole, Cahier believes the treatment well worthy of trial in cases of idiopathic enuresis. Phimosi, adenoid growths, or epilepsy, of course, demand appropriate causal treatment, and in those suffering from degenerative nervous conditions, excessive bladder irritability, and atony of the sphincters, the procedure is not likely to succeed. In children the quantity of solution injected on each side need not exceed forty to sixty grams ($1\frac{1}{3}$ to 2 ounces), according to age.

Magnesium Sulphate in the Treatment of Complete Retention of Urine.—Voitachevsky, in *Semaine médicale* for April 1, 1914, is credited with having reported the case of a young man who, five years before, after a fall from a horse, had suffered from complete retention of urine which various measures, including electricity, cauterization, baths, and massage, had failed to overcome. The power of spontaneous micturition was entirely lost, fullness of the bladder causing intense lumbar pain but awakening no desire to urinate. The urethra, prostate, and vesical mucosa were found normal, but, the urine being slightly cloudy, bladder washings and glycerin instillations were resorted to, without, however, any result. Permanent catheterization was then tried, but violent irritation of the neck of the bladder rendered discontinuance of this measure necessary. In view of the observed fact that subcutaneous injection of magnesium sulphate is capable of causing purgation by stimulation of the smooth muscle of the intestine, the same measure was suggested by Koudintzev as one of possible utility in the case of the bladder. On each of two successive days one c. c. (16 minims) of a twenty-five per cent. solution of magnesium sulphate was injected under the skin. On the third day the dose was increased to 1.5 c. c. (24 minims), and at this time the patient noticed a return of the desire to urinate, which he had not experienced for five years. On the two succeeding days two c. c. (32 minims) were injected, as a result of which the patient voided spontaneously nearly 200 c. c. of urine. The same dose was used for four more days, after which the amount was gradually reduced. In spite of this diminution, micturition continued normal, and the injections were left off on the ninth day after the first act of urination. Three months later, although regular micturition continued, it was thought expedient to administer another series of fifteen magnesium sulphate injections. At the time of writing the patient was still urinating three or four times a day without difficulty.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal
and The Medical News.*A Weekly Review of Medicine.*

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Address all communications to

A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,
66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transporta-
tion through the mail as second class matter

Cable Address, Medjour, New York.

NEW YORK, SATURDAY, MARCH 13, 1915.

EVERY PHYSICIAN MUST REGISTER.

At two meetings of pharmacists in New York held during the past week, it was stated that prescriptions had been received for narcotic drugs which failed in one respect or another to conform to the requirements of the Harrison antinarcotic law; the pharmacists naturally declined to fill such prescriptions, since to dispense them might involve a fine of \$2,000 and imprisonment for five years, or both. In some instances the prescriber was offended.

We recur to a subject which we have treated several times during the past few months, and again direct attention to the fact that under the act which went into effect March 1st, the physician is required to register with the United States Collector of Internal Revenue for the district in which his office is situated. He can purchase supplies of opium and coca and their derivatives and preparations thereof only on special order blanks, which must be purchased from the collector. He must put on every prescription calling for these drugs in excess of a certain maximum, the quantities specified, the name and address of the patient, the date, and his own full name and registered number. It has been ruled that the usual form of signing by initials is not sufficient; the prescriber must sign his name, not J. P. Smith, but John P. Smith.

In the second and third internal revenue districts of New York, which cover the Borough of Manhattan, 6,252 persons were registered by the deputy collector up to March 9th out of a total of 8,092 physicians, dentists, druggists, and veterinarians. In the first district, which covers Long Island and Staten Island, 4,200 were registered up to March 8th, out of a total of 4,579. Statistics are not yet available to show the proportion of physicians and of druggists who have registered, though the authorities think that druggists have been more prompt than physicians.

The doctor who has not registered cannot plead ignorance; there has been no lack of notification; the medical journals have all given warning that the law was about to go into force, the medical societies have done likewise, the board of health of the city has incorporated the requirements of the law in its weekly bulletin; and many pharmacists and manufacturers have taken occasion to send notices to members of the profession. With all this machinery in operation, it seems unlikely that any physician in active practice can fail to be aware of his obligations. This occasion is but one of many in which the physician is a gainer by reading his medical journals. There are physicians, however, who fail to appreciate the services rendered them by medical journals, and among them the Government will find and punish the men who have failed to comply with the law.

Under the New York State law known as the Boylan Act, all purchases of certain narcotic drugs must be made on official order blanks obtained from the board of health. This law is not affected by the National law, consequently, the physician in New York who wishes to purchase the drugs named must fill out two order blanks, one the United States internal revenue blank, and the other the New York board of health blank. A movement is on foot so to amend the laws of the various States as to make them conform to the National act and avoid unnecessary duplication, but until such amendments are made, all who handle, deal in, prescribe, or give away narcotics in New York must conform to both Harrison and Boylan laws.

VALUE OF EARLY TREATMENT IN LOCOMOTOR ATAXIA.

Our object is not to review the symptoms and laboratory findings which are the aids for the early diagnosis of locomotor ataxia, but rather to direct attention to the need for such early diagnosis. The opinion held by most physicians is that locomotor ataxia is an incurable, progressive disease which cannot be affected by antisiphilic treatment as

other syphilitic conditions can be. A decidedly pessimistic attitude has been assumed; with such a fixed conviction one cannot expect that the treatment will be as determined as it should be. The clinical worker does not find himself without support in this conception of the effect of treatment upon locomotor ataxia. One theory of the pathology, one which found many adherents, was that locomotor ataxia was primarily a parenchymatous disease, in which the neurones were involved from the very beginning. Treatment could have but little if any effect upon degenerated or degenerating nerve fibres. It was, however, appreciated by the adherents of this theory that treatment could perhaps do much in checking new neurones from being attacked by these destructive primary changes. The general prospects were, it must be said, looked upon as almost hopeless by too many.

A second group of workers took a more optimistic standpoint and attacked the disease with expectation of definite results. This group believed that the primary changes were not parenchymatous but interstitial, the meninges being involved first and the root fibres of the posterior zone secondarily. Nageotte was the most persistent advocate of this view. He advocated early therapy, so that the disease could be checked before it destroyed the nerve fibres. Recently, Hassin (*Neurologisches Centralblatt*, 12, 1914), of Chicago, working in the laboratory of Jakob, in Hamburg, gives definite pathological evidence in support of this contention. His findings seem to be conclusive; the optic nerve showed the same changes as the posterior root regions.

This finding is of the greatest significance for the following reasons: If there is a primary inflammation of the meninges in the posterior root region and a secondary affection of the root fibres, then the initial changes are interstitial and not parenchymatous; the neurone degeneration is not primary but secondary, and, at certain stages of the disease, there are combined primary meningeal (interstitial) changes and secondary neurone (parenchymatous) changes occurring simultaneously. Although we cannot restore to function broken down nerve fibres by stopping the inflammatory processes in the meninges, we can check further inroads upon the neurones. Since the nerve fibres are the parenchymatous structures necessary for functional activity of the nerve paths, this means that nerve function can be conserved and the progress of the disease brought to a standstill.

In order to accomplish this result, we must, in the first place, make an early diagnosis of locomotor ataxia; the earlier the diagnosis, the better are the chances for good results. Most important are a

good history of the case, a systematic neurological examination, and a blood and spinal fluid examination. An early diagnosis being made, our hope lies in our therapy. The patient should be treated with confidence and with optimism. The treatment should be conscientiously and persistently carried out. The clinical progress of the case should be our guide, assisted by the important spinal fluid and blood findings. The gradual return of the spinal fluid to normal is extremely important. A high cell count shows meningeal involvement and tells us that treatment should be boldly carried on.

Whatever nerve fibre destruction has occurred cannot be repaired. The important point is that by an early diagnosis and early treatment, we may check further progress and preserve the nervous system from permanent damage. Realizing, therefore, that tabes dorsalis is a chronic spinal syphilitic meningitis, we make a plea for early diagnosis and early treatment. Therein lies our only hope in the treatment of this disease.

WAR AND PHYSIQUE.

It has been urged that war is a necessity to keep up the physical standards which flag during times of peace. But while war consumes the best physically, and trains only the best, it must not be forgotten that it is the training for war and not war itself that develops the physique. War is a destroyer, not a developer. Military training is for the few. This is apparent when the trained army is compared in numbers with the eligible male population of a country which maintains armies. Those who would be most benefited by military physical training are rejected for one defect or another. As the need for new men increases, the physical standards become lower and lower, until the physique of the future line armies is below the average of the civilian population. Indeed, it is with the rejected that wars are finally fought.

Therefore, instead of rejecting all those who fall below the military standard of the recruiting officer, every individual, unless actually disabled, should be accepted, but assigned to duties where his particular defect will not be a handicap to himself or others. The recruiting officer should have an eye for the selection of individuals for work that they can do, rather than merely for the separation of the good from the bad. If a defective can fill a place in civil life, a place can be found for him in military life. There is no reason why a hunchback may not be a sharpshooter or a gunner or a manipulator of heavy ordnance pieces; why a flatfooted man may not be a good cavalryman or a driver of motor vehicles; why a myope may not be a good telegrapher; and

so on. The value of the undersized—the bantam—over the oversized has been demonstrated. The recruiting officer should search for faculties that are better developed in the defective, and assign him accordingly; Nature sometimes compensates for defects by overdeveloping other faculties. The advantage of such selection would be that all material would be made use of at the same time, and in the losses there would be an equal distribution between the perfect and the defective, rather than an immediate using up of the best; and, secondly, when future line armies were made up, they would not be composed entirely of untrained, rejected men.

Under present methods of recruiting, war destroys the best and leaves the poorest to be the fathers of future generations. In this respect epidemics are better for the race than war, since they strike the weakest first. Indeed, after great conflicts epidemics have followed in their wake and carried off the weak—in a manner cutting down this overabundance of physical incompetents. The physical underdevelopment of the Southern Europeans is ascribed by Friedman (*Journal A. M. A.*, March 9, 1912) to the fact that Southern Europe has always been the cockpit. During the Middle Ages, when war was everywhere rampant, the average span of life did not exceed twelve years. Comparatively few years of peace, among other progressive developments, has raised the span of life to nearly fifty years. Undoubtedly the enormous destruction of life in this war will lower this considerably.

Military training is a method of physical development engaged in only by the few, just as are the violent athletic sports. Barbaric sport, as well as barbaric warfare, denotes a physical deterioration in all except those who actually engage in it. Those who are most inspired by martial airs or barbaric sports are the ones who are least able to take part in them. The introduction of healthful sports and physical training in the schools and colleges, and their enforcement as part of the curriculum, would be of far more universal benefit for the future, than the present method of military training for the few. The step from the universally well trained physically to the universally well trained militarily is a short one.

VENEREAL DISEASES IN THE UNITED STATES.

For many years attempts have been made to determine what proportion of males have or have had syphilis or gonorrhea. The estimates have varied from those which state that eighty per cent. of the adult male population have been infected, to others which hold that twenty per cent. would include all. That there is no accurate method of de-

termining the actual number is well recognized, yet such information would be of much value.

Banks (*Public Health Reports*, February 26th) has attempted to obtain more accurate results by determining the number of cases of venereal disease in a definite class of men; then, by estimating the relative proportion of that class to the male population in general, he gets the average percentage. For his purpose he selected the seamen who are concerned in the care and navigation of merchant ships, as there are fairly accurate records of such men when sick. The Government has provided a hospital service for them for 112 years, and as such sailors have in the past paid a monthly tax, the probabilities are that a vast majority of the sick sought its aid.

In twenty-five years, out of the one and one third million patients, there were 285,000 venereal cases, a percentage of 21.4. To allow for occasional duplication, the percentage is given as twenty. When the entire number of seafaring men in the United States is taken into consideration, it would give a percentage of 8.15 of venereal infection among them. "Hence if he (the seafaring man) shows but eight per cent. of infection annually, it is fair to say that not more than five per cent. of adult males can be properly under suspicion as original annual venereal victims. Of these males, two per cent. in round numbers would be syphilized and capable of transmitting the constitutional infection to offspring, and the remaining three per cent. could have gonorrhea and its complications. In a campaign for prevention, we can start out by saying that we have to deal with nearly two and a half million cases of venereal disease [among males] annually treated in the United States."

Even if such statistics are not mathematically accurate, they give a fair idea of the extent of such diseases. They do not give us much information, however, as to the percentage of men who have had venereal disease. But as Banks well puts it, "the real interest centres practically in facing the problem for the future, not in estimating the exact damages of the past."

THE MOST STRIKING SYMPTOM OF GANGRENE.

Ombredanne, chief of the military hospital at Verdun, writes in the revived *Paris médical* for February 13, 1915, of gangrene as a phenomenon of the wounds in the present war. Gangrene began to appear only after September 15th when the trenches were dug. Ombredanne attributes it largely to the deficiency in bathing facilities. Few combatants get the chance to wash the body below the waist: thus, while gangrene is almost unknown in

wounds of the face and chest, it is most common in wounds of the thigh, the skin of which is likely to be soiled by traces of feces. It may invade the entire limb within sixteen hours of the initial wound. Of the symptoms, Ombrédanne lays stress upon the horrible and characteristic odor. On entering a ward in the morning, the surgeon is able to tell, from the odor, that a case of gangrene has supervened during the night. So tenacious is the smell that patients with healed wounds are still surrounded with it after several days. It has the extraordinary property of causing among the newer nurses and orderlies a diarrhea fetid with the odor of gangrene. To this symptom Ombrédanne gives first place, not having observed more than two cases without it.

ARE NURSES NOT TO BE NURSES?

The introduction, on March 3d, into the Legislature of the State of New York of a bill by Mr. Tallett to amend the public health law in relation to the practice of nursing, gives evidence that the coterie of trained nurses who made such a vigorous effort to amend the English language through legislative enactment by restricting the use of the word, nurse, to those registered by the State board, were not discouraged by their defeat at the last session of the legislature. The bill as it now appears is quite different in form from that which was introduced a year ago. It is either very loosely or very skillfully drawn, since it is so worded as to cast considerable doubt on the meaning of some of its provisions. In the hands of executive authorities who were inclined to be harsh, the bill might be made most onerous in its enforcement. On one particular point the bill is quite definite; it provides a salary of \$2,500 for a secretary of the board of examiners, who shall herself be a registered nurse. Careful investigation would probably show that the measure was inspired by someone who had the requirements for the secretaryship and would not be averse to accepting the office. On account of the loose manner in which the bill is drawn, the apparent desire to provide a soft berth for some nurse of political ability, and the lack of need for legislation on the subject, this measure will probably meet with vigorous opposition from the medical profession.

AN OLD REMEDY FOR "RHEUMATISM."

Referring to some comments of Sir Lauder Brunton in the *Lancet* for February 6, 1915, Sheffield Neave, of London, in a communication to that journal for February 20th, states that he had a patient, fifty-five years of age, who had suffered from joint pains, called rheumatism, for over thirty-six years; happening to take sulphur for the relief of

a lumbago, he continued the remedy for some four months as a prophylactic. His pains were completely cured and remained so for over six years, during which time he took two or three troches of sulphur two days in the week. The essence of the cure, says the writer, is to persist for some months in the use of the sulphur.

News Items.

Changes of Address.—Dr. Flora V. Kramer, to 1509 Eastern Parkway, Brooklyn.

Dr. Ambrose A. Scouler, Dr. Alexander Koch, Dr. Benjamin Antonowsky, and Dr. John A. Quell, to 1205 Eastern Parkway, Brooklyn.

The Zurbrugg Memorial Hospital, situated at Riverside, N. J., was formally opened on Monday, February 12th. The institution was established as a memorial to the late T. Zurbrugg, who left \$250,000 for the purpose.

American Association of Immunologists.—The second annual meeting of this organization will be held in Washington, D. C., on Monday, May 10th, under the presidency of Dr. Gerald B. Webb, of Colorado Springs, Colo. Dr. Martin J. Synnott, of Montclair, N. J., is secretary.

Northeast Kansas Medical Society.—At the annual meeting of this society, held in Lawrence on Thursday, February 25th, Dr. G. W. Jones, of Lawrence, was elected president, Dr. J. J. Brady, of Frankfort, vice-president, and Dr. Everhardy, of Leavenworth, secretary. The next meeting of the society will be held in Topeka.

Medical Women's Club of Chicago.—At the regular monthly meeting of this organization, held on Wednesday, March 10th, Dr. Frederick Tice, president of the West Side Branch of Cook County Medical Society, was the guest of honor. The principal feature of the program was an address on midwifery by Dr. Joseph B. De Lee.

Milk and Baby Hygiene Association.—At the sixth annual meeting of this association, which will be held on Tuesday afternoon, March 23d, at the Copley-Plaza Hotel, Boston, Dr. Charles W. Eliot, chairman of the advisory committee, will preside; Dr. S. Josephine Baker, of New York, director of the Bureau of Child Hygiene, of the Department of Health, will deliver an address.

The Æsculapian Club, Philadelphia.—At the recent annual meeting of this organization, the following officers were elected: President, Dr. E. H. Bainbridge; first vice-president, Dr. E. S. Cooke; second vice-president, Dr. C. F. Martin; secretary, Dr. R. F. Keating; treasurer, Dr. W. C. Ramsey; directors, Dr. John W. Dick, Dr. W. O. Hermance, Dr. Randle C. Rosenberger, and Dr. Frank White.

New State Hospital for Criminal Insane Opened in Lima, Ohio.—The new \$2,000,000 State institution for the criminal insane, in Lima, Ohio, was officially opened on February 15th, and patients are being transferred from other State institutions which have been greatly overcrowded. It is expected that by the end of May more than 600 patients will be housed in the new institution, of which Dr. Charles H. Clark is superintendent. State officials are planning to open hospital wards for the special treatment of narcotic drug addiction and alcoholism.

Medical Association of the Greater City of New York.—A stated meeting of this association will be held in Du Bois Hall, New York Academy of Medicine, on Monday evening, March 15th, at 8:30 o'clock. The program will consist of a symposium on arteriosclerosis, the various aspects of the disease being treated by Dr. Louis Faugères Bishop, Dr. Wilbur B. Marple, Dr. Joseph B. Bissell, Dr. Charles E. Perkins, Dr. William P. Healy, and Dr. Terry M. Townsend. There will be a general discussion, among those who will take part being Dr. Reynold Webb Wilcox, Dr. John D. Quackenbush, Dr. Beverly Robinson, Dr. Theodore Tuthill, Dr. Richard C. Newton, of Montclair, Dr. Gordon K. Dickinson, of Jersey City, Dr. Thomas Darlington, Dr. Graeme M. Hammond, Dr. Victor A. Robinson, Dr. Edward E. Cornwall, Dr. A. Ernest Gallant, Dr. William R. Broughton, Dr. William Van V. Hayes, Dr. Ellice M. Alger, Dr. J. J. Valentine, and Dr. J. J. Connellan.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, March 15th, Philadelphia Clinical Association, Medical Society of the Woman's Hospital, Episcopal Hospital Clinical Society; Tuesday, March 16th, West Branch of the County Medical Society, Mount Sinai Hospital Clinical Society; Wednesday, March 17th, Section in Otolaryngology and the College of Physicians; Thursday, March 18th, Section in Ophthalmology of the College of Physicians, Northeast Branch of the County Medical Society; Friday, March 19th, Southeast Branch of the County Medical Society, Jefferson Hospital Clinical Society.

Physicians' Coast to Coast Study Tour.—Full details are now available for the next round trip of the American Society for Physicians' Study Travels. A special all Pullman train starts from Philadelphia, June 6th, for St. Louis, Denver, Salt Lake City, and the Pacific Coast, returning via the northern route and Chicago so as to reach Philadelphia July 12th. This provides for attendance on the annual meetings of the American Medical Association and the American Climatological Association. The Panama exhibitions at San Diego and San Francisco and the health resorts, teaching institutions, and great natural scenic attractions en route are included so that a liberal course of postgraduate study is possible. Local committees of the profession at notable points reached will as usual doubtless help to make this across continent tour one of unusual attractiveness. Travel details otherwise are in the hands of a well known tourist agency. As the train space is limited, physicians with members of their families and other friends should secure berths promptly.

The Belgian Relief Fund.—The treasurer of the Committee of American Physicians for the Aid of the Belgian Profession presents the following report for the week ending March 6, 1915: Contributions: Dr. Grace Wolcott, Boston, \$10; Dr. Harold E. Perry, New Bedford, Mass., \$10; Pittsburgh College of Physicians, Pittsburgh, \$45; Dr. Daniel R. Robert, Brooklyn, \$5; Mrs. Charles E. Paddock, Chicago, \$5; Dr. Charles S. Wright, Acting Assistant Surgeon, U. S. A., Portland, Me., \$5; Dr. E. C. S. Taliaferro, Norfolk, Va., \$30; Dr. William H. Wilder, Chicago, \$25; The Thunder Bay Medical Society, Ontario, Canada, \$25; Garland County-Hot Springs Medical Society, Hot Springs, Ark., \$25; Dr. J. Shelton Horsley, Richmond, Va., \$5; Dr. E. F. Dodds, Missoula, Mont., \$5; Dr. George R. Little, Wichita, Kan., \$25; Dr. James A. Jackson, Madison, Wis., \$5. Receipts for week ending March 6th, \$225; previously reported receipts, \$4,386.50; total receipts, \$4,611.50. Previously reported disbursements, 1,625 standard boxes of food at \$2.20, \$3,575; 352 standard boxes of food at \$2.30, \$809.60; total, \$4,384.60. Disbursements week ending March 6th, 100 boxes of food at \$2.30 per box, \$230; total disbursements, \$4,614.60; deficit, \$3.10.

Medical Relief Work in China.—A special commission, composed of Dr. Harry Pratt Judson, president of Chicago University; Dr. Francis W. Peabody, of Harvard Medical School, and Roger S. Greene, then United States Consul General at Hankow, was appointed last year by the Rockefeller Foundation for the purpose of making a first hand study of public health conditions and medical practice in China. The report of this commission, issued recently, shows great need for medical relief in China, not only to prevent the spread of infectious diseases like bubonic plague, but to carry on an extensive campaign in public health and preventive medicine. To carry out this work the foundation has established an organization to be called the China Medical Board of the Rockefeller Foundation, with Mr. John D. Rockefeller, Jr., chairman, and Dr. William H. Welch, Dr. Simon Flexner, and Dr. Francis W. Peabody among the members. The plan outlined by the commission aims to develop medical education in China as the first step, and with a view to building up a body of Chinese medical men able to teach medical science, the foundation will establish six fellowships, each of \$1,000 a year and traveling expenses, to enable Chinese graduates to study abroad. Appropriations have also been made for five nursing scholarships, to enable Chinese nurses to attend training schools in this country, and for the translation of nursing textbooks into the Chinese language. There is great need for foreign nurses in China. The commission also recommended the establishment of two model hospitals for tuberculosis, as China suffers greatly from this disease and has no institution equipped for its treatment.

Personal.—Dr. Frank Anderson, chief physician at the Ohio State Sanatorium, has resigned his position and will be succeeded by Dr. J. D. Thomas, of Catawba.

Dr. Charles H. Mayo, of Rochester, Minn., was the guest of honor at a banquet given by the Academy of Medicine of Kansas City, Mo., to celebrate its twentieth anniversary.

Dr. Edward W. Ryan, of Scranton, Pa., has been decorated with the Order of St. Sava by the Prince Regent of Serbia, in recognition of the work done by him in the Red Cross Hospital in Belgrade.

Dr. Fred H. Albee, of New York, demonstrated his method of bone grafting at a clinic at the Jefferson Hospital, Philadelphia, on Tuesday, March 2d.

Adequate Appropriations for State Department of Health Urged by Mayors.—On the ground that the educational campaign of the State Department of Health strengthens the work of local health boards, the State Conference of Mayors and Other City Officials has adopted a resolution urging adequate appropriations by the State and its municipalities for carrying on public health work, and recommends the continuance of the educational campaign to bring about a further reduction in the death rate of the State. Mayors and local health authorities are urged by this resolution to bring to the attention of their local representatives in the legislature the necessity of an adequately supported State Department of Health.

The National Committee on Mental Hygiene.—At a meeting of this committee, held in New York on Wednesday, February 17th, the following officers were elected: President, Dr. Lewellys F. Barker; vice-presidents, Dr. Charles W. Eliot and Dr. William H. Welch; treasurer, Mr. Otto T. Bannard; medical director, Dr. Thomas W. Salmon; secretary, Clifford W. Beers; executive committee, Dr. August Hoch, chairman; Dr. George Blumer, Miss Julia C. Lathrop, Dr. William Mabon, Dr. William L. Russell, and Dr. Lewellys F. Barker. Gifts of \$44,500 by Mrs. Elizabeth Milbank Anderson and \$40,000 by Mrs. William K. Vanderbilt for the general work were announced, and the Rockefeller Foundation has agreed to contribute for a series of years the money necessary to retain the services of Dr. Thomas W. Salmon, who has been medical director for three years.

The Tri-State Medical Society, of South Carolina, North Carolina, and Virginia elected the following officers at the annual meeting held in Charleston, S. C., on Thursday, February 18th: President, Dr. James H. McIntosh, of Columbia, S. C.; vice-presidents, Dr. G. A. Neuffer, of Abbeville, S. C.; Dr. C. V. Reynolds, of Asheville, N. C.; Dr. Beverly R. Tucker, of Richmond, Va.; secretary, Dr. Rolfe E. Hughes, of Laurens, S. C.; executive council, Dr. John W. Dillard, of Lynchburg, Va.; Dr. R. B. Epling, of Greenwood, S. C.; Dr. D. A. Stenton, of High Point, N. C.; Dr. James D. Culeper, of Norfolk, Va.; Dr. A. E. Baker, of Charleston, S. C.; Dr. D. T. Tayloe, of Washington, N. C.; Dr. W. W. Fennell, of Rock Hill, S. C.; Dr. J. Howell Way, of Waynesville, N. C.; Dr. Southgate Leigh, of Norfolk, Va.; Dr. E. C. Register, of Charlotte, N. C.; Dr. J. Kennedy Cross, of Newport News, Va.; Dr. W. B. Way, of Ridgeville, S. C. Next year's meeting will be held in Richmond, Va.

Harvard Physicians to Go to the War Zone.—Seventeen doctors and nurses, comprising the Harvard unit for service in the American Ambulance Hospital in Paris, will sail on Wednesday, March 17th, to relieve the doctors and nurses from Western Reserve University who have had charge of a service in the hospital, consisting of 150 beds, since January 1st. Dr. Harvey Cushing, Moseley professor of surgery, is in charge as head surgeon, and Dr. Robert Greenough, assistant professor of surgery, is surgeon and executive officer. Other physicians in the group are Dr. Richard P. Strong, professor of tropical medicine, bacteriologist; Dr. Robert B. Osgood, instructor in orthopedics, orthopedic surgeon; Dr. Beth Vincent, assistant in surgery, assistant surgeon; Dr. Walter M. Boothby, lecturer in anesthesia, anesthesiologist; Dr. Fred A. Collier, Dr. Elliott C. Cutler, Dr. Philip D. Wilson, and Dr. Marius N. Smith-Peterson, resident surgeons; Dr. Lyman G. Barton, Jr., surgical assistant; Dr. Orville F. Rogers, Jr., medical assistant; Dr. George Benet, laboratory assistant.

The Harvard unit will have charge of the service until the end of June, when the University of Pennsylvania will send a corps of physicians and nurses, under the direction of Dr. J. William White, who will carry on the work during July, August, and September.

Gifts and Bequests to Hospitals.—Approximately a quarter of a million dollars is left to public institutions by the will of Emil C. Bondy, who died in New York on February 7th. The largest of the institutional beneficiaries is Columbia University, which receives \$100,000, the income from which is to be used for cancer research work and the publication of the result of such work. This fund may be used for other research in medicine or surgery in case scientific progress in the cancer work makes such further research unnecessary.

Among the public bequests are Mount Sinai Hospital, \$10,000; Presbyterian Hospital, \$7,500. These two are for the endowment of beds. Mr. Bondy made separate bequests for the general uses of the two hospitals of \$10,000 and \$5,000 respectively. Other public bequests are \$10,000 each to the Stony Wold Sanitarium, Loomis Sanitarium, and the Skin and Cancer Hospital, \$5,000 each to St. Luke's Hospital, Montefiore Home, United Hebrew Charities, Hospital Saturday and Sunday Association, \$2,500 each to Crippled Children's East Side Free School and the German Hospital.

A Low Death Rate in New York Last Week.—The mortality in greater New York for the past week was noteworthy by reason of the extreme low point reached, namely 13.91 in 1,000 of the population. This is an unprecedentedly low figure for this season of the year in this climate. The good showing of the figures of the past week compared with those of the corresponding week of 1914, is heightened by reason of the high mortality this time a year ago, which was due to exceedingly trying meteorological conditions and to the increase in the prevalence of influenza. A comparison of the two weeks will show that in the week of March 7, 1914, the deaths from influenza were almost treble, from diphtheria and croup and scarlet fever almost double, and from measles quadruple to those of last week. Viewed from the point of age, every group showed a tremendously decreased mortality from the week of 1914. Under 5 years of age the decrease was 118 deaths, between 5 and 65 years of age the decrease was 174 deaths, at 65 years of age and over the decrease was 117 deaths. These comparisons are made without allowing for increase in population. If such allowance is made, the total decrease in the mortality of the past week with that of 1914 would be 486 deaths.

Operation of the Harrison Antinarcotic Act in Hospitals.—The United States Commissioner of Internal Revenue has issued the following ruling: "For the purpose of enforcing the provisions of the antinarcotic law, a hospital will be considered as a person, and the same regulations governing a physician, as to the keeping of records of drugs dispensed or distributed, will apply to such institutions. A physician is not required to keep a record of drugs dispensed or distributed when making a personal visit on a patient. When visiting a patient in a hospital a physician would be considered as making a personal visit and if he dispenses or distributes any drugs to such patient while in the hospital, he would not be required to keep a record of such drugs. On the other hand, the hospital being considered as a person, must keep a record of such drugs dispensed or distributed to any patient in the hospital, such record showing the date when any such drug is dispensed or distributed, the kind and quantity dispensed or distributed in each case, and the name and residence of each patient to whom such drug was dispensed or distributed, and such record must be preserved for a period of two years from the date of dispensing or distributing for inspection by a government officer. It would seem, therefore, that a hospital in order to keep such record, must formulate rules and regulations of its own making it necessary for a nurse or attendant to enter in a book, or report daily to the pharmacist in charge of such drugs, the information required to be obtained for such inspection. A visiting physician, attending a patient in a hospital, should be required by the hospital authorities, when prescribing any drug falling within the scope of this law, to place his initials on the chart or medicine sheet, immediately after the drug prescribed, which will enable the supervising nurse in each ward or operating room to furnish the pharmacist the information necessary for record. The foregoing requirements do not apply to Government, State, county, or municipal hospitals, established and maintained solely as such, or to the Public Health Service.

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

December 7, 1914.

Chemotherapeutic Investigations in Malaria of Birds, by L. H. Marks.—Whether quinine in the concentration which can be secured in human blood is directly destructive of parasites in malaria is a question; it has been shown that strong solutions are required for destruction of the parasites *in vitro*. The present investigations on birds shows that a number of dye stuffs have more or less therapeutic action, and that of these methylene blue is the most active, both *in vivo* and *in vitro*. It is even more active than quinine in birds. Several theories are discussed but no definite conclusions are reached as to the precise mode of action of any of these agents, including quinine.

Diagnosis of Gallbladder and Pancreatic Affections, by Max Einhorn.—By means of his duodenal bucket Einhorn has studied the duodenal contents in biliary or pancreatic disease. In two cases of catarrhal jaundice, mucus was present; the bile was scanty and clear. Thirteen of fifteen cases of cholecystitis showed turbid bile; in five gallstones were found at operation. Four out of six cases of pancreatic disease showed the absence of one or two of the ferments; in the remaining two all three were present. If the bile is golden yellow and clear the gallbladder is generally normal; if greenish and turbid, the indication is that the bladder is diseased, and usually stones are present. Golden yellow bile with mucus is found in cases of catarrhal jaundice; a clear golden yellow bile may occur in the presence of stones. The constant absence of one of the pancreatic enzymes indicates chronic pancreatic disease, but disease of the pancreas may be present with all of the ferments to be found in the secretion. The constant absence from the duodenal contents of both bile and pancreatic juice, shows mechanical obstruction just above the ampulla of Vater, usually from stone.

December 11, 1914.

New Information about Old Opium Alkaloids, by Julius Pohl.—With the idea of preserving the morphine supply, Pohl relates observations regarding the action of other opium alkaloids alone or in combination with morphine. Narcophin exerts the action of its contained morphine only; it must be given in doses sufficiently large to provide an average dose of morphine. On the other hand, if one fortieth of the effective dose of codeine is combined with one quarter of the dose of morphine, the full action of the latter can be secured so far as its effects on the alimentary canal are concerned, at least in animals. Papaverine also exerts the same gastrointestinal actions as morphine, producing constipation, and also relaxes spasm of the uterus and other smooth muscle, acting in this respect much like atropine. It also reduces blood pressure to a marked and lasting degree. It seems, further, to control many cases of vomiting, particularly when due to pyloric spasm. Experimentally it has been found to reduce the excretion of sugar after phloridzin or epinephrine. Central depressant action of the drug does not appear with the

doses which produce the other effects, though it can be elicited in dogs with larger doses.

Posttyphoidal Strumitis, by Eduard Melchior.

—Reporting a case of posttyphoidal abscess of the thyroid gland occurring nine years after the primary infection in a man with simple goitre, Melchior discusses the question of the causation of this delayed action of the typhoid organism. It seems that the cases in which it has been reported have frequently been the subjects of some thyroid disease before the development of the abscess, or have had a family history of goitre. The contents of the abscesses in these cases show living typhoid bacilli, which have lain nearly dormant since the previous infection—a period which may reach twenty-one years. These abscesses never appear until the febrile course of typhoid has subsided, and from this it is suggested that the organisms producing the abscess have been attenuated in virulence by the action of the host's antibodies, but have not been entirely killed off. The relative immunity of the tissues of the host, together with a local focus of living typhoid bacilli in a region of slightly reduced resistance, provides the necessary conditions for the development of a purely local action of the organisms.

December 21, 1914.

Evaluation of the Hemolytic and Antihemolytic Power of Syphilitic Serums, by Ernst Nathan.

—Serums from 113 nonsyphilitics showed a hemolysin content less than normal in fourteen per cent. of the cases. Among eighty-seven serums of syphilitics, forty-one per cent. showed less than the normal amount of hemolysin. It is obvious that the hemolytic activity of the serum is not of diagnostic value.

The Parenchymatous Toxic Actions of the Syphilitic Virus in Early Visceral Syphilis and Tabetoparalysis, by A. Buschke and Max Michael.

—Evidence from study supports the contention that many of the phenomena of syphilis are caused by toxins, in locations without the affected regions. Among the effects of these toxins are: Precocious syphilitic icterus which often passes into fatal acute yellow atrophy of the liver, early syphilitic nephritis, syphilitic diabetes, alopecia, leucoderma, and tabetoparalysis. Perhaps the strongest argument in most cases is the difficulty of demonstrating spirochetes in the lesions; the administration of mercury, supposed to have antitoxic action, often leads to amelioration of the symptoms.

MUNCHENER MEDIZINISCHE WOCHENSCHRIFT.

January 1, 1915.

Sodium Salvarsan in Practice, by George L.

Dreyfus.—This preparation of salvarsan has the advantage of being as active as old salvarsan and can be given as easily as neosalvarsan. Chemically, it is the same preparation as is obtained when salvarsan is alkalinized. It is a yellow powder, readily soluble in water, 0.3 gram of which contains 0.2 gram salvarsan. The dose, therefore, is slightly larger than when salvarsan is employed. It is given in concentrated form, not over thirty c. c. of water being employed for doses varying from 0.15 gram to 0.75 gram. The average dose is 0.45 gram; when it is employed in combination with mercury two injections are given weekly. When given alone, three

injections are given weekly. During the course of the cure, which lasts usually from six to eight weeks, four to 7.5 grams are given. Cases can be treated ambulatorily, that is, if the injections are given at night the patient can usually follow his occupation in the morning. In a series of several hundred cases, no bad results were observed, the temperature never going above 38° C.

Salusil in Ophthalmology, by Alexander Roesen.

—Salusil is the name given to a group of colloidal products containing silicic acid or its derivatives. Experiments show that it is taken up by the conjunctiva very readily and that after a few moments neither the conjunctiva nor the eyeball shows any change. If too much is placed in the conjunctival sac, lachrymation is produced. It can be used in the treatment of eye conditions in combination with forty per cent. ichthylol, fifty per cent. balsam of Peru, one per cent. silver nitrate, five per cent. protargol, etc., or it can be used alone. It is employed in the following way: After the affected area has been cleaned, the preparation is applied in the form of powder and allowed to remain, a bandage being applied if possible. It takes up the secretion of the conjunctival sac after the manner of a sponge and allows the medication employed to come into contact with the affected part. It has been used with considerable success, especially in the treatment of eczematous conditions of the eye.

The Late Dysentery Epidemic, by Gustav

Singer.—The observations covered a series of about 600 cases. Of great importance is the rectoscopic examination, particularly in determining whether the dysentery has run its course. Patients who had been practically normal as regards symptoms for a period of several weeks and in whom the stool examination had been negative showed the presence of ulceration of different character when examined endoscopically. This occurred so frequently that no cases were discharged unless examined in this way. The blood examination usually showed an erythrocytosis of about 6,000,000 with 120 per cent. hemoglobin, a leucocytosis of about 15,000 with the large mononuclear and transitional cells amounting to about ten per cent. Eosinophiles, even in the presence of fever, were practically never absent. During the convalescence obstipation was seen: at times associated with bradycardia and a rise of temperature. The most frequent complications were myalgia, neuralgia, especially intercostal neuralgia, and conjunctivitis. Others were urethritis and a rheumatoid condition. The therapy consisted principally of bolus and charcoal with an occasional purge. For bowel irrigation, decoction of saleg, solutions of protargol, saline with adrenaline, tannin, etc., were employed. Serum was used in about thirty cases with good effect. Horse serum was used in place of curative serum in twenty-five cases, and the dose administered was from ten to twenty c. c.

BULLETIN DE L'ACADÉMIE DE MEDECINE.

January 1, 1915.

Biokinetic Treatment of Frostbite, by François Debat.—Biokinetic procedures first recommended by Jacquet have yielded satisfactory results. Whereas immersions in warm water, frequently practised, merely increased local edema and pain, massage

twice daily and active movements of the part ten times daily produced rapid improvement, healing of ulcers, disappearance of edema, of pain, return of sensation. The habit in the frostbitten to immobilize the part is precisely the way to render the condition worse. The aim in treatment must be directly to restore circulation. Massage should consist in mild pinching of the tissues, followed by effleurage. The active movements in frostbite of the foot consist in rapid, repeated alternate elevation and lowering of the leg for five minutes at hourly intervals. The patient lies on his back and after raising the leg to the vertical position, holds it there with the hands and alternately flexes and extends the toes and the foot. In the intervals between exercises the patient should lie down, with the foot slightly elevated. No dressing is used unless there is ulceration. The value of exercise to activate the circulation in the limbs for the prevention of frostbite is also emphasized.

Reading without Glasses in Presbyopia, by Lesage.—Where the glasses ordinarily in use have been broken and immediate reading of a notice or order printed in small type is necessary, Lesage finds that the difficulty can be obviated by holding between the eye and the print to be read a piece of cardboard or paper perforated by means of a pin. Although the light is cut down, the properties of a convex lens can be thus secured.

Localized Lumbosacral Edema in Chronic Peritonitis, by E. Lenoble.—Lumbosacral edema is a very early, though infrequent, sign of deep chronic peritonitis, tuberculous or cancerous. In eighteen cases in which this sign was noted, sixteen had tuberculous disease. The disease begins as a slight edematous infiltration around the spinous processes of the lumbar, sacral, or lumbosacral vertebrae. This edema may persist for some time, or even disappear, without any other sign of the peritoneal disease. Generally, however, the edema broadens, extending to the adjacent lumbar regions, and some time later characteristic signs, abdominal enlargement, supplementary venous circulation, pain, and ascites, appear. Autopsy observations seemed to show that the edema referred to is caused by pressure of thickened connective tissue or enlarged mesenteric glands on the veins which connect the posterior paraspinal system of veins, particularly the ilio-lumbar, with the common iliac veins and the root of the inferior cava.

PARIS MÉDICAL.

January 16, 1915.

Diagnostic and Prognostic Value of Bile Cultures in Typhoid Fever, by P. Carnot, B. Weill-Hallé, and A. Dellac.—Detection of typhoid bacilli in the bile was employed for diagnostic and prognostic purposes. Two methods of securing bile were used; one consisted in administration of fifty to 150 grams of sterile olive oil on an empty stomach, followed by removal of the gastric contents through a tube, three quarters to one hour later. Boldireff showed that ingestion of oil caused regurgitation of bile and pancreatic juice through the pylorus, and when the gastric contents are allowed to stand, a more or less bile stained fluid containing typhoid

bacilli can soon be pipetted off from the bottom of the tube; a pure culture of the organism is obtained in positive cases. The second method, more difficult to carry out, consists in the passage of a narrow rubber tube, provided with a small, rounded glass nozzle, into the duodenum. Three hours after ingestion of the tube, its extremity will pass through the pylorus and a fluid consisting almost entirely of bile can be aspirated. Blood cultures give positive results in typhoid earlier than the bile cultures, but the latter remain positive after the septicemic stage has terminated. Early disappearance of the bacilli from the blood and early appearance in the bile are of favorable prognostic significance. The chief value of the procedure, however, is in showing how long typhoid bacilli remain in the gall-bladder after convalescence, thus permitting more accurate detection and management of carriers than has hitherto been the case. The bacilli were observed sometimes to disappear between the twenty-fifth and thirtieth days, occasionally even earlier. In a second group, the bile ceased to show bacilli after intervals varying from thirty-seven to seventy-one days, while in the third group they disappeared still later or persisted at the time of writing.

PRESSE MÉDICALE.

January 14, 1915.

Treatment of Typhoid by Continuous Application of Cold to the Abdomen, by E. de Massary. Brand baths, the author has come to look upon as useless, if not harmful. A broad, loosely filled ice-bag is kept over the abdomen throughout the disease. A thick layer of talcum powder and a piece of thin flannel are placed beneath the icebag, which is held in place with a folded undersheet. If the skin becomes bluish in color, the icebag is removed for a few hours. The ice is renewed every two hours and a half. The absolute rest which this treatment allows constitutes a decided advantage over the systematic Brand method. The author insists also upon free administration of fluids, including two or three litres of milk, together with various simple infusions to which a little whisky has been added, orangeade, lemonade, etc., the whole making up four to five litres of fluid per diem. A little coffee, tea, or whisky may be added to the boiled milk given, and after each cupful the patient washes out the mouth with some mild alkaline fluid. The abundance of fluid given keeps the mouth moist, obviates parotiditis, and in particular, promotes diuresis, the urinary output reaching five or six litres in a few days. Where dysphagia or gastric irritability prevents copious drinking, a solution of fifty grams of sugar in a litre of boiled water is very slowly run in the bowel, or saline or glucose solution, hypodermoclysis or intravenous infusion practised. The icebag is continued until the temperature has been normal for two days. Solid food is allowed only after ten days of normal temperature. The icebag is considered to exert a favorable action on the intestinal lesions (as in appendicitis) as well as on the septicemic state, cooling the blood as it passes in the abdomen. In a series of 140 cases, including fifty-seven soldiers treated under very unfavorable conditions, the mortality was 8.5 per cent.

RIFORMA MEDICA.

January 30, 1915.

Nontuberculous Lesions of the Pulmonary Apex, by L. Ferrannini.—The recognition of such lesions is of great importance because they are readily curable, and because the patient in such cases is spared the ostracism of phthisis. Early recognition often results in the prevention of tuberculosis; the placing of the patient in a sanatorium is avoided. The definite diagnosis of the nontuberculous nature of an apical condition, furthermore does not exclude the individual from life insurance. Ferrannini's researches justify the following conclusions: In a little over one half of all cases of alterations in the pulmonary apex seen at autopsy, tuberculosis was the exciting cause. In the rest of the cases, tuberculosis was positively excluded by histological methods. The causative factors in such cases were syphilitic sclerosis, foci of chronic interstitial pneumonitis of pleuritic origin, sclerosis from inhalation of dust even in subjects not exposed to such dust in their ordinary occupations.

Granular Forms of the Tubercle Bacillus, by C. Martelli.—Researches seem to show that there are three cycles in the development of the bacillus. In the first, the bacillus is smooth with ramification, elongation, and formation of terminal capsules or spores. These spores are granules which take the Gram stain intensely, which finally elongate and reproduce the smooth form of the bacillus. The second stage is that of fragmentation of the bacillus with formation of Gram resistant bodies which are also acid resistant. This form is found especially in the lung. The third cycle is that of rosary formation, where there is formed a series of granules which are intensely acidophile, and resistant to Gram stain.

Conditions Favoring Precipitation of Biliary Cholesterin, by L. d'Amato.—If bacteria, the colon or typhoid bacillus, are inoculated into bile, or into a solution of sodium taurocholate or glycocholate, there is noted after a few days a marked diminution of the bile salts. These bacteria have the property of diminishing biliary nucleoprotein, and of thus preventing to a large extent, the precipitation of cholesterin. The presence of epithelial cells does not seem to favor such precipitation, but hydrochloric acid and foreign bodies do. Ten per cent. egg albumin will produce precipitation of cholesterin in the presence of methyl alcohol.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

February 2, 1915.

Physiological Surgery, by A. M. Perez.—A plan is made for what may be called physiological instead of orthopedic surgical methods, wherein the surgeon has as his goal not only the anatomical but, even more, the functional restoration of the part. Rubio laid down a law that every anatomical change is either physiological or of some other nature, especially when the change occurs during the development of organs. Great stress is laid on the care to be taken in orthopedic operations, especially when subcutaneous section is done. It is much less important to cut an artery than a nerve. Although many surgeons prefer the open method, Perez is

still an ardent supporter of the subcutaneous method. Several cases are described of deformities of the lower extremities which were corrected by tenotomy, tendon stretching and muscle transplantation.

Foreign Bodies in the Larynx in Children, by L. Vallespinosa y Vallé.—The common foreign bodies found in the larynx in children are beans, fruit stones, and pebbles. The first symptom is convulsive spasmodic cough with a peculiar metallic guttural voice. Ordinarily the foreign body lodges in the vocal cords. Inspection of the larynx is only of service in diagnosis when done with the laryngoscope. Complications are ulceration of the tissues, bronchopneumonia, and pulmonary emphysema. The treatment consists in the administration of emetics and the tickling of the pharynx to produce vomiting. If emesis does not expel the foreign body recourse must be had either to intralaryngeal operation or to tracheotomy. Tracheotomy in such cases should never be done by the intercricothyroid route because it does not afford enough light for the extraction. It is better done below the cricoid, including in the incision the upper rings of the trachea.

BRITISH MEDICAL JOURNAL.

February 20, 1915.

Wassermann Reaction in Ophthalmic Practice, by William H. Manson, Thomas J. Mackie, and H. Edgar Smith.—Two hundred and fifty patients were studied by means of the Wassermann reaction to determine the proportion of syphilis. Approximately half gave positive reactions, although many of the cases were of tertiary or latent syphilis. Nearly eighty-nine per cent. of all cases of interstitial keratitis gave a positive reaction; fifty-four per cent. of cases of iritis or iridocyclitis gave positive reaction; fifty-seven per cent. of cases of optic atrophy and slightly over fifty per cent. of cases of paresis of one or more of the external ocular muscles, also gave positive reactions. In all other ocular conditions the proportion of positive Wassermann reactions was quite small, or there were no positive reactions at all. So many of the lesions were manifestations of the later stages of syphilis, the proportion of positive reactions does not fully represent the frequency of syphilis as the cause.

Popliteal Aneurysm in a Girl, by J. Leeper Dunlop.—The child, aged twelve and a half years, was in good health, though physically frail; suddenly and without exertion, she felt a sharp pain in the back of one knee. The knee was much swollen and tender, particularly in the popliteal space. Her foot was cold and somewhat edematous, the knee rigidly held in a semiflexed position. The administration of calcium lactate and digital compression of the femoral artery maintained for twenty-four hours did not cause clotting. A little more than two months after the first symptom, the vessel was restored with complete success by the method of Matas. Although so short an interval had elapsed since the development of the aneurysm, the sac was found to be completely lined with endothelium. The case is reported on account of the extreme rarity of aneurysm in an age below fifteen

years, particularly in the absence of malignant endocarditis.

Salicylic Acid in the Treatment of Wounds and Typhoid Fever, by Albert Wilson.—Application of the dry powdered acid to suppurating and infected wounds has given excellent results. It causes considerable liquefaction of the scab or slough and these disappear promptly, leaving a clean, bright red, granulating surface which heals rapidly. Offensive odors disappear within twenty-four hours. It causes no pain or irritation even if frequently applied. It is possible even to introduce it into the peritoneal cavity in infected cases. Doses of three to five grains in milk or bismuth suspension have given very favorable results in typhoid fever. The author has made bacteriological studies on the action of salicylic acid; 0.2 to 0.5 per cent. of the acid in the medium inhibits or destroys Shiga's dysentery bacillus, *Bacillus typhosus*, *Staphylococcus*, *Streptococcus pyogenes*, *Bacillus diphtheriae*, *Pneumococcus*, and *Bacillus tetani*.

LANCET.

February 20, 1915.

Lipemia retinalis, by R. Foster Moore.—The records of two patients, aged twenty-three and twenty-five years respectively, both in the terminal stages of diabetes mellitus, are reported. In one, typical lipemia retinalis was discovered twenty-seven hours, in the other twenty hours, before death. The diagnosis by retinoscopy is so simple and the picture is so characteristic that examination of the eye affords the readiest and most accurate method of diagnosis. The retina, except the vessels, appears normal in all respects. These vessels are of salmon color on the optic disc, and for a short way outside it. As the periphery of the retina is approached, the salmon color fades into a pure cream color with scarcely a trace of pink. Although lipemia retinalis is said to occur in several cases, the author has found no reported case in any condition except diabetes mellitus. It is most frequent in early adult life, and is usually a late manifestation of disease. Only one case is reported in which the patient survived its first appearance. Its presence is therefore of considerable, though unfavorable, prognostic importance. The author thinks that the retinal appearance is due to an alteration in the refractive power of the blood serum. In both of the reported cases lipid bodies were found in excess in the shed serum, although their precise nature could not be determined.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

January 1, 1915.

The Sigmoid Flexure in Health and Disease, by James Cantlie.—The sigmoid is considered as a distinct organ, both physiologically and pathologically, rather than as a mere channel. The applied anatomy of the sigmoid, the function of the sigmoidorectal pylorus, the use of the sigmoidoscope, the various possible lesions of the sigmoid, and their prognosis and treatment, are taken up in succession in detail. Stress is laid on the fact that the persistent chronic mucous colitis which frequently follows dysentery is not a general affection of the

bowel, but a purely local one which can be dealt with by direct application. Dieting has little or no effect on the condition. The first step recommended is touching the ulcerated and inflamed surface through the sigmoidoscope with a small piece of cotton dipped in pure phenol; this should be repeated once or twice at intervals of two, three, or six days, and cures the local inflammatory condition with remarkable promptness. The bowel should also be washed out with sea water, previously filtered, heated to 175° F., and cooled to 100° F. These enemas—of one or two pints each—should be given on two successive days after morning stools, then every other day for a week, twice during the third week, and subsequently at intervals of a week or ten days if required. Castor oil in teaspoonful doses at bedtime for a week or two was also found of great assistance. When the acute and subacute symptoms of the disease are in abeyance, and the intussusception always present in chronic cases has been reduced by the bowel irrigations, stretching of the narrowed sigmoidorectal pylorus by a series of introductions of the sigmoidoscope is essential if a cure is to be obtained.

PRACTITIONER

February, 1915.

Internal Secretions.—The study of the internal secretions, begun in the January number, is continued by Charles E. de M. Sajous, Leopold-Levi, Carl von Noorden, W. Langdon Brown, George R. Murray, W. Blair Bell, Herbert Ewan Waller, J. M. H. Macleod, Theo. B. Hyslop, and J. Parlane Granger.—Sajous discusses the theory of the internal secretions, taking the glands in turn. From a consideration of the known facts he believes the function of the thymus to be to supply, through the agency of its lymphocytes, the excess of phosphorus in organic combination, or nucleins, which the body, particularly the osseous and nervous systems, requires during its development and growth. He thinks that the pancreas in addition to producing an internal secretion that governs carbohydrate metabolism, supplies ferments which take a direct part in the protein metabolism of tissue cells, and also in the defensive reactions in these cells and in the blood stream. The evidence regarding the adrenal secretion suggests that this, after absorbing oxygen from the pulmonary air and being taken up by the red corpuscles, supplies the whole organism, including the blood, with its oxygen. The secretion of the thyroid and parathyroids seems to enhance oxidation by increasing the inflammability of the phosphorus that all cells contain, particularly in their nuclei, thus rendering all pathogenic elements which contain phosphorus, bacteria, their toxins or endotoxins, and toxic wastes more vulnerable to the digestive action of the plasmatic, phagocytic, or cellular defensive ferments. Taken together, when their functions are considered collectively and interwoven physiologically, these glands seem to form the fundamental mechanism of the vital and defensive processes of the body. The thymus supplies to all tissues the excess of phosphorus in organic combination, possibly as nucleins, required during the development of the body to build up its

cell nucleins. The thyroparathyroid secretion sensitizes these nucleins to the action of oxygen. The adrenal secretion endows the blood with its oxygenizing properties. The pancreas supplies the ferments which convert food materials into products harmonious to, and for the building up of tissue cells, i. e., for the anabolic phase of metabolism, and the same ferments carry on the catabolic phase.—Leopold-Levi defines thyroid insufficiency as inadequacy or suppression of the function of the thyroid. The symptoms vary with the degree and can scarcely be recapitulated in a brief review. Thyroid insufficiency as a rule is insidious in its onset, does not threaten life, and is amenable to treatment. It should be suspected or looked for in persons presenting neuritis and arthritic syndromes, symptoms of hypothyroidism or hyperthyroidism, gout, retarded development, menstrual troubles, toxic infections, endocrine complexes and wherever it is desired to determine the temperament of the subject. Treatment is with thyroid substance.—Von Noorden brings out very strongly the close relation between diabetes and disease of Langerhan's islands.—The internal secretions of the alimentary canal receives attention from Brown, particularly secretions of the stomach, duodenum, intestines, and liver. It appears that the only two proved examples of hormones formed here are gastric secretin, and the secretin of the duodenum and to a less extent of the rest of the small intestine. The pancreas forms one concerned with carbohydrate metabolism, while the liver does not seem to form any in the strict sense of the word.—The use of hormones in medicine, obstetrics, and children's diseases is discussed by Murray, Bell, and Waller. Hormones have been divided by Starling into acute and chronic, according as the results of their actions are immediately or more remotely apparent. Adrenaline is an example of the former, the thyroid hormones are examples of the latter. Other acute hormones are pituitary extract from the posterior lobe and intermediate part, and secretin, the former is specially useful in shock, increases peristalsis and uterine contractions, temporarily increases the flow of milk, and sometimes controls persistent vomiting. The therapeutic value of secretin is not yet fully established. It is also useful in menstrual disorders of various kinds, parturition, and the puerperium.—Waller's article with regard to children's diseases is very suggestive, and yet difficult to abstract; it portrays clearly that we hardly know in any case whether hormones should be prescribed or not. For example nocturnal enuresis may yield to small doses of thyroid extract, may be made worse by large doses, may be uninfluenced by either, and may apparently be caused by thyroid treatment for some other condition. He deals with an extraordinary range of affections, such as bad teeth, epilepsy, tetany, chilblains, stunted growth, insomnia, adenoids, tuberculosis, and others. One of his suggestions is that ordinary cases of adenoids and tonsils may depend on temporary suprarenal exhaustion.—MacLeod deals in the same way with a number of skin diseases, and, as he says, the relation of the internal secretions to the skin are of profound interest and open up possibilities with

regard to the etiology of affections the cause of which is obscure at present, while organotherapy promises to play an important part in the treatment in the near future.—Finally Hyslop discusses the part played by the internal secretions in the psychoses, and Granger writes of thyroid insufficiency in general practice, and describes a number of cases that have come under his observation.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Cancer of the Breast, by W. L. Rodman.—Cancer of the mammary gland is second in frequency to carcinoma of the stomach. The evidence, clinical, microscopical, experimental, and surgical, is conclusive that cancer always begins as a strictly local disease. A late diagnosis cannot be atoned for by a more extensive operation; therefore our best endeavors should be in the direction of earlier diagnoses, or, better still, we should attack all lesions which are potentially malignant and remove them at a time when their hosts can safely, certainly, and quickly be cured. If the small growth is excised, along with a fair amount of tissue immediately adjacent, so as to get beyond any outlying cancer cells, the wound thus made quickly heals, and that is the end of the trouble. It never returns *in loco* or elsewhere. All depends on the thoroughness of removal. Free and early excision by the knife is the only thing to be considered, because one can never tell the extent of the disease until the lesion and surrounding tissues have been examined by sight, touch, and the microscope, so that the surgeon may know that his work has been rightly done. Hence the futility of caustics, radium, Röntgen rays, etc., in the treatment of an operable neoplasm of the mammary gland; they have no justification whatever, pathological or clinical.

Typhoid Epidemic Occurring Three Months after the Use of Prophylactic Vaccine, by E. H. Trowbridge, B. A. Finkle, and E. M. Barnard.—This outbreak, the source of which was shown to be the milk supply, took place in the Minnesota School for Feeble Minded and Colony for Epileptics. Fifty-seven cases in all were diagnosed as clinical typhoid; forty-six being in inmates and the others in employees. Three of the inmates were inoculated, and only one of the employees had received the prophylactic. It is evident from a study of this epidemic, and from the experience of others, that in some cases the typhoid vaccine fails to confer immunity, or confers only partial immunity. The vaccine employed for inoculation in this institution was prepared by the State Board of Health, used within the specified time limit, and kept at the proper temperature. The conclusions given are as follows: 1. Typhoid fever may be contracted by individuals who have received the prophylactic and who subsequently show a positive Widal reaction. 2. The course of the disease is not appreciably shortened in vaccinated individuals. 3. The mortality is markedly reduced in protected persons. 4. Protected persons having typhoid fever fail to give many of the classical symptoms of the disease. 5. The development of paratyphoid is not prevented

by the use of the typhoid prophylactic. 6. The degree of immunity conferred by the prophylactic in some cases fails to prevent the development of typhoid when the individual has been subject to repeated exposure. 7. The Widal reaction as a criterion of the presence of immunity is of uncertain value. Finally, the opinion is expressed that typhoid vaccination in all hospitals and institutions is the one and only method to eradicate this ever present disease.

Citric Salts in Congestive Dysmenorrhea, by B. L. Spitzic.—Most inorganic types of painful menstruation, frequently complicated by sterility, may be ascribed to the one essential, congestion, and, furthermore, such organic conditions as minor malpositions and moderate atresia may be largely dependent on this fundamental factor. It has been suggested that increased viscosity of the blood takes part in the production of dysmenorrhea; causative factors are faulty hygiene, defective elimination, nitrogenous overindulgence, sedentary occupation, and tight lacing. In the treatment, nitrogenous food, which increases the viscosity of the blood, is restricted before the menses. Catharsis depletes the portal circulation, and at times a hot compress is applied for the purpose of causing relaxation. The important procedure is the reduction of viscosity by means of sodium citrate, twenty grains of which are given three times a day during the week or two preceding the expected period. It seems probable that the alkaline citrate neutralizes carbon dioxide and other waste products; thus proving an efficient agent for preventing cellular edema and for diminishing viscosity. The clinical evidence in support of the value of this treatment is the improvement of pain and the reduction of clots and membranes in the menstrual discharge, while nausea, dizziness, headache, and mental irritability are also improved. There are types in which dysmenorrhea is an expression of the vagotonic state, increased irritability of the craniosacral nerves leading to a higher degree of uterine and cervical spasm. In this vagotonic dysmenorrhea, Neugebauer speaks favorably of the use of atropine.

MEDICAL RECORD.

February 27, 1915.

The Mentally Defective in the Courts in New York, by M. G. Schlapp and L. G. Hollingsworth. A large number of delinquents are undoubtedly mentally irresponsible, and in considering any particular case, mental abnormality should be thought of as a possible causative factor. The only way to tell how many of the persons who pass through the courts are mentally abnormal would be to examine every one of them. At present only those are apprehended who are so obviously and flagrantly defective as to arouse the suspicion even of the inexpert in psychiatry. Many of the individuals finally brought to the Clearing House for Mental Defectives, and classed as imbeciles or morons were "repeaters," with records of five or six appearances in court. Totally irresponsible and hopelessly incorrigible, they had simply drifted from one term of punishment to another or one period of probation to another, unrecognized as mentally de-

fective. Such subjects cannot be reformed, and they are neither in any true sense responsible for their deeds, nor able to profit by punishment. Also in the case of those adolescents who suffer from mental instability, reformatories and penal institutions are not indicated. It is clear that the great problem of individualizing punishment has as yet scarcely been even attacked. For many reasons it would seem that the children's courts afford the best point of departure for the working out of a general scheme for social betterment in respect to the problem of delinquency. If every delinquent child could be thoroughly examined, mentally, physically, and socially, on his first appearance in the court, and disposed of in accordance with the results of such examination, a great gain would without doubt be made toward the solution of the problem of adult delinquency. Several of the adult prisoners examined at the clearing house had made their appearance in the children's courts while they were under sixteen years of age; if these defectives could have been properly apprehended at that time, their subsequent crimes could have been spared to themselves and to the community. Still, much progress has been made of late in recognizing the fact that a problem exists. It seems well nigh incredible now that only fifteen years ago there were no children's courts in New York city; that children were tried and sentenced like adults. Mental and physical examination was unthought of, and it was indeed the crime, and not the criminal, that was punished.

What the General Practitioner Should Know about the Therapy of Syphilis, by A. Rostenberg.—The best results are naturally to be expected when a case presents itself in its earliest primary stage, when the spirochetes are still localized in the primary lesion and perhaps the nearest lymph nodes. In the treatment recommended, calomel is employed as a dusting powder for the chancre. The systemic treatment is started with from 0.30 to 0.45 gram of neosalvarsan, according to sex, weight, and robustness of the patient; neosalvarsan being more easily prepared than salvarsan. The drug is dissolved in ten c. c. of freshly distilled and sterilized water, drawn up in a Record syringe, and slowly injected, by means of a straight needle, in the median vein under aseptic precautions. The mixing of blood with the solution will show that the vein has been correctly entered. In cases in which, because of a very fat arm or poorly developed veins, it would be impossible to introduce the needle without a dissection of the vein, the intramuscular method is advisable. After the first injection, four or five more are given; the second injection, eight or ten days after the first, and if the first was well tolerated, a dose of from 0.45 to 0.60 gram is given, then two weeks afterward one from 0.60 to 0.75 gram, repeated in another two weeks, gradually increased to 0.90 gram. Immediately after the first injection of salvarsan weekly injections, up to ten or fifteen, are given of ten minims of a ten to twenty per cent. emulsion of mercury salicylate. Even in spite of negative signs, it is safer to extend the treatment for a period of about two years in ordinary cases; giving two or three courses such

as that described in the first year, and one or two in the second. In cases seen for the first when the secondaries have developed, the great majority, the effects of salvarsan might be too expensive; the large number of killed spirochetes liberating too large an amount of dangerous endotoxins. It is therefore best to commence with one or two injections of the milder acting mercury, and then employ neosalvarsan as mentioned. An intermittent salvarsan-mercury treatment extending over from three to five years, or even longer, may be necessary; the Wassermann test, with all its modifications, being our only guide as to a final cure. In the tertiary stage of the disease, in addition to salvarsan and mercury, potassium iodide, in large doses, is recommended. The amount may be quickly advanced to 100 grains a day, and it may be given in vichy or milk. The iodide is also useful in the so called malignant forms of syphilis.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

February, 1915.

On the Indications for Artificial Nutrition, by M. Einhorn.—Artificial nutrition may be required in cases of subnutrition, in which the digestive canal presents no obstacles to the passage of food; in cases of difficult or impossible nutrition caused by obstacles to the passage of food; in cases in which absolute rest of portions of the digestive tract is needed to effect a cure. When nutrition is insufficient, and all attempts to overcome it by ordinary methods fail, the necessity of artificial nutrition is obvious. Refusal of food is met with principally in insanity and in certain affections of the central nervous system; insufficient nutrition is found in many chronic diseases. The esophageal method of artificial nutrition is to be selected because the aliment is best assimilated when subjected to the action of the entire digestive apparatus. The second group represents the largest number of cases in which artificial nutrition is required, and it may be subdivided into organic stenosis of high degree, including malignant stricture of even a minor degree, and medium sized benign organic stenosis and spastic stricture. In the former class rectal alimentation is demanded when the difficulty is caused by marked stenosis of the esophagus, cardia, pylorus, duodenum, or small intestine, while in stenosis along the colon subcutaneous alimentation is called for. In all these cases artificial nutrition is but a temporary expedient; stricture requires separate treatment appropriate to the condition, whenever such treatment is possible. In cases where operation is impracticable, one must be satisfied with the surgical establishment of a food passage. Should this not be feasible, artificial nutrition will naturally have to be carried on as long as life lasts, and here subcutaneous and rectal alimentation can be advantageously employed conjointly or, if necessary, alternately. In the second class of cases, nutrition will depend upon the location of the difficulty; if it is in the esophagus or cardia, duodenal alimentation should be employed; if in the pylorus or duodenum, duodenal alimentation, and if for any reason this fails, rectal alimentation. In this whole class the separate treatment of the principal lesion should never be

lost sight of. In the third group of cases, the ordinary way of nutrition, while at times somewhat impaired, is always possible. Here the extrabuccal alimentation is employed as a means of curing or ameliorating diseased states.

Pulsus alternans, by H. C. Gordinier.—Traube, in 1872, first described a pulse with rhythmical irregularity in volume, which he called pulsus alternans. The sphygmograph showed waves of large and small amplitude following each other in regular succession; he also noticed that while large and small beats were placed alternately throughout, the interval between large and small beats exceeded that between small and large beats. Pulsus alternans, while not common, is not very rare; it comes third among pulse irregularities, extrasystoles holding first place, and auricular fibrillation, second. Clinical alternation is often overlooked for the reason that it cannot be recognized without the graphic registration of the pulse. Its presence is positive evidence of defects of contractility, this in turn being due to myocardial changes, temporary or permanent. Except in the temporary form due to great rapidity of rate, pulsus alternans is of grave prognostic import, since, in consequence of the extensive myocardial degeneration it indicates, most patients die from cardiac insufficiency within three years of its onset. Extrasystoles, invariably followed by alternation, also indicate exhaustion of contractility and present a grave prognosis. Persistent false bradycardia, due to feeble systoles, where the deficit between the apex beat and the pulse rate is but little altered by the exhibition of such cardiac tonics as digitalis and strophanthus, also indicates grave defects of contractility, with extensive myocardial degeneration and unfavorable prognosis.

OPHTHALMIC RECORD.

January, 1915.

A Method of Destroying the Lacrymal Sac in Chronic Dacryocystitis, by H. Gifford.—Gifford prefers the following treatment to excision of the sac which he says he has never performed. 'The sac is incised three sixteenths to a quarter of an inch from the caruncle—a vertical cut a quarter to three eighths of an inch long, including the palpebral ligament. Once in the sac introduce a grooved director and lengthen the cut as needed. Then pack the sac with gauze until the bleeding has stopped. The rest of the operation may be left till the next day, leaving the packing *in situ*, or it may be performed at once after cessation of the bleeding. The cavity is dried out with cotton on applicators, with cotton wrapped firmly on the ends so as to make a ball about an eighth of an inch in diameter. Apply zinc ointment over the skin surrounding the external incision and a little into it. Separate the lips of the wound. Put two or three drops of liquefied, full strength, trichloroacetic acid into the cavity, scrub the interior of the latter thoroughly with the ball swab referred to, being extra careful to reach the cupola and the cellar, in fact every part of the interior of the sac. Dry out the cavity again, dip the ball swab in trichloroacetic acid and give an extra rubbing. Dry out again, syringe out with any cleansing solution, fill the cavity with aristol, apply

zinc ointment again and then a light bandage, which may be removed in a day or two, after which it will only be necessary to keep the skin about the incision soft with zinc ointment or petrolatum until the healing is complete. The resulting scar is so slight that it can be seen only by close inspection.

SURGERY, GYNECOLOGY AND OBSTETRICS

January, 1915.

Diagnosis and Treatment of Osteomyelitis, by M. B. Clopton.—The earliest symptom of osteomyelitis is pain in the shaft of the long bone (usually near the end), accompanying septic symptoms. In a few cases of profound sepsis, pain sense is lost. Soon there is swelling of the shaft near the joint, frequently at the epiphyseal line. At this stage the joint is not involved. Septic arthritis usually is an intense infection, with pain and several joints involved. Tuberculosis is a chronic disease that involves the epiphysis, and syphilis may give a similar picture. The x ray is of great value, except at onset of the infection. The treatment in the acute stage is to drain to the centre of the medulla by removing a narrow channel of bone along one side of the shaft. Gutta serena tissue is used to drain this channel. The medulla should never be cleaned out, as it is needed for the endosteal regeneration. In the subacute or chronic stage of osteomyelitis of the femur or humerus, treatment is planned to allow the shaft to heal after efficient and sufficient drainage. If sequestra have formed, these are removed, and the cavity is wiped out with gauze. It is best not to curette these cavities or to attempt to sterilize with antiseptics; iodoform beeswax of Mosetig-Moorhof is introduced into the cavity to act as a drain, which is partially absorbed and partially extruded. Gauze should never be used as a drain in either the acute or chronic stage.

Pylorotomy and Partial Gastrectomy, by W. L. Rodman.—If the ulcer or ulcers are situated at or near the pylorus, as they are in about eighty per cent. of all cases, and the pyloric end of the stomach and proximal portion of the duodenum can be easily mobilized, pylorotomy, which gets rid of the existing ulcers, and prevents future ones to a large extent, removing, as it does, four fifths of the ulcer bearing area, is certainly the operation of choice. The frequency with which hemorrhage, perforation, and cancer, especially the latter, follow gastroenterostomy, shows it to be wholly inadequate. Moreover, the radical operations of excision and pylorotomy are only slightly more dangerous while far more beneficial in every way than gastroenterostomy. If, however, the converse obtains, the writer states, the stomach and duodenum being bound down by adhesions to adjacent viscera, such as the pancreas, liver, gallbladder, transverse colon, etc., simple gastroenterostomy, the anastomosis being made about the middle of the stomach, should be practised. If the symptoms are not relieved within a reasonable time, then pylorotomy may be performed more safely. Before such a step is taken the operator should be assured that the gastroenterostomy is patent and functioning. The operation can also be done in two stages in those patients not in good condition, whether it be from hemorrhage, anesthetic, or other cause.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, December 21, 1914.

The President, Dr. THOMAS S. SOUTHWORTH, in the Chair.

The Theory of the Workmen's Compensation Law.—Dr. FREDERIC W. LOUGHRAN, medical adviser of the State Insurance Fund Administered by the New York State Workmen's Compensation Commission, read this paper, which will be published in the JOURNAL.

Dr. THOMAS DARLINGTON, who is a member of the State Workmen's Compensation Commission, believed that the working out of the present law helped the physician, although every law was attended by some hardships. Criticisms made should not be applied to the work of the medical profession in connection with the law, or to the law itself; this was a matter for the legislature. Now, as to some of the benefits to physicians; the State insurance fund administered by the State commission, one of the largest of the insurance concerns having to do with workmen's compensation, had up to the present time received in premiums something like \$1,400,000. Of this amount, \$400,000 was expected to go to physicians in the State, and this money was largely for services in cases in which, under ordinary circumstances, they probably would not have received anything. For twenty-three years he had practised in the neighborhood of a large foundry and a great railroad, where the workmen in the former received about eight dollars a week, and the trainmen one dollar or \$1.25 a day. On these scant wages what was there left for a family of perhaps seven? For a case of confinement he would perhaps receive a dozen eggs, perhaps a goose, perhaps a bag of potatoes. For the treatment of minor accidents among the men he seldom got anything. Although clinics were perhaps too numerous in the city, he had often wished for a clinic in that vicinity. It was no doubt better that there should be a fixed scale of fees, but the State commission had not made any fee bill. It was absolutely necessary for some of the insurance companies, however, to have such. Personally, he had thought the physician should adjust the price of his services to the position in life of the patient, but the commission had been disappointed in the attitude of many of the profession. He would like to call special attention to the large percentage of septic wounds; such a condition of affairs was at the present day unnecessary. There was a failure to appreciate the possibilities of prevention on the part either of the medical profession or the manufacturers. The Carnegie Steel Company had under Doctor Sherman, of Pittsburgh, worked out a system for the care of the health of the employees. Six years ago 500 out of every 1,000 accident cases, or fifty per cent., had been of septic character. After three years of betterment work, the cases of septicemia had become reduced to one eighth of one per cent. Such a result showed what could be done; everything was properly and promptly attended to, and septic wounds became practically a thing of the past.

He did not mean to say that the fees offered under the workmen's compensation law were commensurate with the skill and experience of physicians; but they were confronted with a condition, not a theory. Much could be done through the education of the manufacturer. It should be thoroughly understood that every injury, however slight, must be taken care of by a physician; this was simply economy for the employer. The Carnegie Steel Company had appreciated this, and had freely paid out its money in building hospitals and maintaining reliable medical and surgical staffs. The reports handed in by physicians had been referred to by Doctor Loughran. These were sometimes almost illegible and often open to criticism as regards the diagnosis. For instance, he had been somewhat at a loss to understand just what was meant by traumatic appendicitis or traumatic hernia; nor could he understand just how the cranking of a Ford machine could give rise to aneurysm of the aorta. Physicians should correct such matters for themselves, and the blanks provided were so conveniently arranged that it was a simple matter to fill them out satisfactorily. The present law had its defects, and perhaps the medical profession would be able to bring about suitable amendments. Physicians should take their part in public affairs, and endeavor to educate the communities in which they lived. Having cited illustrative cases in which the attending physician's claims had and had not been allowed, the speaker said the commission had no less than 300 cases a day to dispose of, any one of which might perhaps formerly have occupied a whole day in court. It could not accomplish all this work unless it had the aid of the physicians. As an encouragement to them it could be stated that the fees allowed in New York were higher than those in any other State.

Dr. ALEXANDER LAMBERT said that before the workmen's compensation law had been enacted, the question arose in the House of Delegates of the State Medical Society as to what should be done. A resolution was adopted calling for the appointment of a committee to consider what should be the action of the profession in the matter, and later the council appointed a committee with power. In looking over what had been done in the States of Massachusetts, California, Ohio, and Michigan, this committee found that a schedule of prices had been fixed upon. They were dealing with persons whose yearly income was for the most part \$600, or less, and had to consider what charges were right. It was found, in general, that the rate of wages varied very little in the State and country, and the fee bills in the different States to a great extent agreed. Of all accidents met with, three fourths were small injuries. Under the New York law the physician's pay commenced at the beginning of the patient's disability, while the workman himself did not begin to receive his compensation for two weeks. In the State outside of the city of New York and two or three other large cities the ordinary charges of physicians were from fifty cents to \$1.50 for office visits, and from one to two dollars for house visits. The charge in the fee bill of two dollars for each house visit, and one dollar for each office visit, was therefore fair and just, even under the ordinary

circumstances of general practice, and much more so under the workmen's compensation law; particularly as three fourths of all charges made by physicians would come under these items. In general practice, however, it was one thing to charge for professional services, and another to collect; while under the workmen's compensation law the returns were practically 100 per cent. Doctor Lambert then answered some of the criticism which had been received from physicians in the State, and in speaking of hospital work stated that in Syracuse Dr. F. H. Flaherty had succeeded in getting one of the wards of St. Joseph's Hospital set apart, so that any physician in the city could treat in it his patients who came under the workmen's compensation law. It could not be denied that the fees allowed for this kind of work, when compared with those generally received by the successful surgeon, were very small; but this was not the case when compared with the fees which could be expected from patients with incomes of \$600.

Dr. WARREN COLEMAN said that the subject of workmen's compensation was so broad that it was possible to discuss only a few of its phases; they were but part of a general movement of society for the conservation of the health of the workman; yet they were economic, rather than philanthropic. The goal of the conservation movement obviously should be the prevention of industrial diseases and injuries, or at least their reduction to a minimum. The New York State law, in common with most other such laws, provided for medical examination of workers only after injury had been inflicted or when the patient was suffering from evident disease. Yet many diseases and injuries could be prevented if medical examination were made a condition of employment. For example, an epileptic should not be permitted to become a structural ironworker; a man with a barely compensated heart should not engage in a laborious occupation. Detection of the earliest signs of chronic lead poisoning might prevent permanent disability. A dusty trade never caused tuberculosis; it merely brought out a latent process. Early detection of the disease would save the health, if not the life, of the employee and protect the employer against loss. It seemed incredible that at the recent national convention of the American Federation of Labor in Philadelphia organized labor should go on record as strongly opposed to the physical examination of workers, except in trades having extraordinary health hazards, and that the Ohio State Federation of Labor should have recently passed a resolution calling for legislation which would make it a penal offense for an employer to require medical examination of a worker as a condition preceding employment. That medical examination could be made a cloak to cover abuses might be perfectly true, but the abuse, and not the demand for examination, should be made the offense. He could but express the hope that future laws would be directed as much to the prevention of industrial diseases and injuries as to compensation after the damage had been inflicted.

Dr. LORNE McDONNELL RYAN had looked after a great many cases both in Manhattan and Brooklyn, and he considered the physician the mediator between employer and employee. One of the great

objections to the law as it was administered was that the period of two weeks in which the workman had to wait for the beginning of his compensation was entirely too long. He supposed that the reason for establishing such a period of waiting was in order to prevent malingering. It might be that some would take advantage of an earlier time for compensation, but this waiting was a great injustice to the man who deserved the money. Most workmen had wages just sufficient to live upon, and every day he saw hardships suffered by men of all nationalities thus deprived of their earnings. Frequently men were obliged to resort to public charity because they were scarcely able to sustain life in themselves and their families. Illustrating another defect in the law was the case of a physician, who had been treating successfully a fracture of the clavicle; he was told that he would have to turn the patient over to another doctor, who was employed by a certain insurance company. Another defect was that in filling out the slips, as required, it was a difficult matter to determine the time of disability. He had amputated a finger on a Friday, and the man went to work on Saturday. On the other hand, an abrasion of the shin in another patient might have laid him up for two weeks. To a great extent length of disability depended upon the patient's individuality. Some had less courage than others. Pain affected some more than others.

Dr. BENJAMIN M. BRIGGS said that in a workman's compensation case he had recently received a check for just half of the amount he had charged in his bill. The case was one which had occasioned him considerable trouble, but he realized that a physician's charges ought to be reasonable for patients of this class. In his ordinary practice his charge for office visits was from two to five dollars, and in this instance the bill he sent in had been at the rate of two dollars a visit. He would only say that if the money had to come from the State he would accept the one dollar a visit payment, but if it came from an insurance company he would demand two dollars.

Dr. EDWARD WALLACE LEE said that in the future, contract services by physicians would be coming more and more in vogue, and he believed this was an excellent thing. He had been for eighteen years contract surgeon to a great railroad line, and the company had done everything in its power to render the service prompt and thoroughly efficient. He would like to say that both traumatic appendicitis and traumatic hernia had been established.

Dr. ROBERT H. M. DAWBARN said that as to "traumatic appendicitis," he could see no objection to the term. Repeatedly, though of course among the rare causes, he had operated where the cause was a violent blow upon the belly in this region, and, in consequence, the appendix was found swollen, inflamed, and even gangrenous. As to "traumatic hernia," it was an accepted fact that since the peritoneum was inelastic, no sudden violence could stretch it into the sac of a well developed hernia. The size of a small egg had been considered in medicological discussions on this point as being the limit of the admissible hernia sac from such cause. In rare instances there was no sac, or by great violence the gut was projected through the torn sac

wall, and most of the hernia was outside. By operation the truth would be ascertained. The reason why a small hernia from sudden violence was considered admissible, notwithstanding the inelastic nature of the peritoneum forming the sac, was that sometimes the natural continuation of the opening into the tunica vaginalis became sealed off, in prenatal life, only at a point external to the superficial abdominal ring; thus permitting an empty tube to lie in the canal. This, being suddenly distended by gut or omentum, made a traumatic bubonocoele, and for the same reason a *very small* hernia, outside the superficial ring, was just possible.

Doctor LOUGHRAN said that there was a great difference between surgical and economic disability. Doctor Walker had informed him that in London the members of the fire and police departments were not expected to return to active duty under nine months after a fracture of the thigh. Employers were beginning to realize the importance of finding out the exact condition of men who had suffered from accidents, and the cases were now generally seen by the surgeon on the day before the patient returned to work. There could be no doubt that the contract system had come to stay, and it was increasing every day. Preventive medicine was the keynote of the present time.

Dr. JOHN B. WALKER said that the treatment of fractures was twenty years behind that of other surgical conditions. What was going to help most in this matter was that men were going to find out the end results. Among the London firemen and policemen it was twelve months, rather than nine, before they went back to work in cases of fracture of the femur.

Annual Meeting, January 18, 1915.

The President, Dr. THOMAS S. SOUTHWORTH, in the Chair.

Election of Officers.—The following officers were elected: Vice-president, Dr. Edward E. Cornwall; corresponding secretary, Dr. Frank C. Raynor; treasurer, Dr. Isaac Hartshorne; chairman for the Borough of the Bronx, Dr. Nathan B. Van Etten; member of the council, Dr. Frank H. Daniels.

Report of the Corresponding Secretary.—The report of the statistics for the year showed that the membership of the association was now 759.

Tuberculosis among Migrants.—Dr. CHARLES E. WOODRUFF, Lieutenant Colonel, Medical Corps, U. S. A., retired, said that the tuberculosis death rates of the various races in the large cities presented differences which had hitherto defied explanation, since there were no factors such as poverty and overcrowding which were not common to all. Indeed, some adverse factors were more frequent in races having the lowest rates. Anthropologists had proved that what they once called European races were mixtures, in various proportions, of the same types of people. Recent discussions as to the universality of tuberculosis among city dwellers had brought out many facts which seemed to clear up this ethnic puzzle, as well as many other paradoxes in the disease. The known data were not sufficiently clear or numerous for the profession to come to a consensus on all points, but the most recent literature seemed to have established that a baby was born free of infection, no matter

what its heredity or environment, and remained free as long as it was kept from contact with the tuberculous. Among savages or barbarians living outdoors, without fixed homes, it remained uninfected throughout life, but in civilization it encountered bacilli which formed a lodgement, it might be, in the cervical lymphatic glands or around the bronchi. The more crowded the environment, the sooner did this tuberculization take place. Probably in cities no child was free after the thirteenth year; whether in the country any child entirely escaped infection was still unsettled. The next point apparently proved was that about ninety per cent. of people had an acute tuberculosis at some period of their lives, and got well of it without even suspecting what was wrong. While in the explanation of this there were as yet differences of opinion, the general trend of thought was in the direction of considering the first infection in childhood a permanency. These minute latent lesions were explained as beneficent, serving to vaccinate the individual constantly, and thus cause the production of an immunity sufficient to protect one against massive infection, but not to sterilize his old lesions. This partial immunization was so universal in civilization that tuberculosis was almost invariably a local disease. Only rarely was a person so lacking in antibodies that the infection was generalized, and these cases of military tuberculosis were found only in infants that had not yet had time to develop immunity and had received massive doses of bacilli, or in a person, like a savage, who had not come in contact with the disease until he received his first large dose, or in a civilized person whose immunity had been destroyed by some other infection, such as measles, whooping cough, or typhoid fever. The vast majority of individuals succeeded in developing an immunity which remained effective until their vitality was reduced from any one of the thousand adversities of the struggle for existence, such as exhaustion, undernutrition, or an added infection. Ninety per cent. regained immunity, and even the ten per cent. who did not, were able to fight the progress of the infection, since they did not lose all their acquired immunity. The point to keep in mind was that almost any adverse condition might so affect the system that an old latent lesion became active or that reinfection occurred.

For the explanation of the ethnic phenomena of death rates, it was immaterial whether they accepted the view that infantile infection was harbored throughout life or that the individual succeeded in overcoming this, to be later reinfected. The facts were better explained by considering that some always harbored their latent lesions, which spread with greater or less rapidity according to the damage sustained from the climate; but they might also consider that they had become susceptible to reinfection. His attention was first directed to this matter in 1890, by the appalling rapidity of tuberculosis among the soldiers in the Philippines, where there was a climate which was ideal according to the theory prevalent at that time, and still held to be such by many physicians. The temperature was equable, there was a maximum of sunshine, and everyone lived outdoors. An order was issued to send cases home by the first boat, as a delay of a single month in getting to a cooler, darker climate would be fatal.

The patients would get well if sent home in the early stages, or even after bacilli were found in the sputum. To explain the matter, they must go back to the basic principle of biology, the law of adaptation to environment. While the characteristics of plants and animals were found to be evolved by the survival of the fittest variations, for a long time man was excepted from this universal law because he was not immediately killed after migration to an unfit climate. If the damage was slight, a type might survive for many generations, even centuries. If variations appeared which were of survival value, these would survive while the rest perished, and in this way many localized types had been evolved after migration from the cradle of the race.

A recent discovery of great importance was that adaptation to the environment must be much more exact than had been thought necessary for permanent survival. A type evolved in one environment must, then, always be more or less injured in any other, and the greater the difference between the two, the greater would be the mortality rate, age for age, and the shorter the average age compared with the same type in its place of origin. It was quite evident that tall men who migrated to lands of small stature, should suffer more from tuberculosis than the short migrants. He had frequently noticed this among Americans in the Philippines, and he had also found that stout and muscular men, particularly athletes who exposed themselves to the sun, would occasionally develop tuberculosis. The native of adjusted physique was frail, and the small American brunets did not furnish many cases of the disease. Blonds were particularly harmed in all light climates where the heat was above the critical temperature for long periods. Such were out of adjustment, and the course of tuberculosis was apt to be exceedingly rapid in them, as he had observed in the Philippines. In the Phipps Institute, of Philadelphia, the third annual report showed that of 725 consumptives, 371 had light eyes; and this in a city population notoriously brunet. In the Agnes Memorial Sanatorium in Denver there were, according to its report, 152 blonds to forty-four brunets. The Hebrews of New York and Boston had lower tuberculous rates than any other racial element of the population, yet they showed the universal phenomenon of elimination of the lightest, many of whom were perfectly adjusted to the darker and cooler cities of Europe. The race was notoriously dark, with only a few blonds, yet Rosenberg had reported that at the Montefiore sanatorium there were 417 light types and 733 dark, the "light" class including all variations from the prevailing dark color of the race. Moreover, cases in the few real blonds among them were said to be rapid, hemorrhagic, and incurable, while those in patients of the ordinary complexion were slow, mild, and curable. On the other hand, Shruball reported the greater tuberculosis mortality of the brunets in those places in Northern Europe where the blonds were the adjusted types; and this was more marked, the blonder the population, and therefore the greater the unfitness of brunets. In all parts of the United States the blonds were the unadjusted, and, while few statistics were available, it had been proved conclusively that blonds fur-

nished more than their share of cases of tuberculosis, and were more difficult to cure. This phenomenon was more marked in the South, where also there were the highest tuberculosis rates in the country. The twelfth census showed that the death rates from the disease of the various races in the United States were approximately proportionate to their blondness. The climate of Ireland differed markedly from that of any part of this country, except the extreme northwest coast. There had never been any selection of those fit for the extremes of heat, cold, light, darkness, or dryness met with here, and as a result some types of Irishmen who had been evolved as the fittest for Ireland, were proving the unfittest for America. According to the census mentioned, the general death rate and the death rates from tuberculosis and alcoholism, for all over fifteen years of age in the registration area, were higher for those having Irish born mothers than for any other division of the white population; while in New York city, in 1906 the Irish death rate from consumption was 476 per 100,000, or almost exactly double that for all classes. Italians, being from similar latitudes, had only a slightly higher rate than the average, in spite of their well known poverty and unhygienic and unsanitary habits. Having referred to various other races, the speaker said that the tuberculosis mortality for each nationality varied little from year to year in New York. This was not temporary and accidental, but a permanent vital phenomenon, constantly eliminating the unfit among the newcomers. In a few generations, however, the survivors should show marked differences in the way of lessened mortality.

Phthysiographers had once lauded climate as an essential in treatment, but the numerous failures in "good" climates and successes in "bad" had caused some to change to the equally erroneous opposite extreme that no particular climate was needed for any case. In spite of this, a few still talked of the ideal climate with a maximum of sunshine; yet Dr. J. E. Stubbert mentioned that in his wanderings for the ideal climate he met with a place in China where the sun shone for five minutes in twenty-eight days, and intimated that he had improved there. Each climate on earth was ideal for the type adjusted to it by ages of survival of the fittest, and harmful for every other type. The eastern climates killed the tuberculous negro, but he got well if properly treated outdoors in hot, sunny places; while a tuberculous European promptly died outdoors in Central Africa. The practical point was that they must study the kind of man the disease had got, as well as the kind of disease the man had got. They could not send every case to the same place. Southern California was like Southern Italy, and it was reported that the Mediterranean type of man (the short brunet) furnished a higher proportion of cures there than any other. On the other hand, physicians of the rainy northwest coast had stated that an Italian who had progressed to the point of having bacilli in his sputum, had never been known to recover there. It was to be greatly regretted that the reports by managers of sanatoriums did not go into this matter more fully, and describe the type of physique with which they had the most success. Rollier was the only one who had done this, and he

had stated that his sun baths injured the blonds who would not tan—a thing which might have been predicted. It was equally safe to predict that bulky patients as a rule would do better in cold climates, and the thin and frail in warm; while great altitude races should not be sent to the lowlands.

Dr. MAURICE FISHBERG, for years, had followed Colonel Woodruff's work, and had been greatly benefited. As to his contention, however, that particular attention must be paid to the complexion of the individual as influencing his adaptability to certain climates, this required confirmation. The complexions of the patients at two sanatoriums, the Phipps Institute and the Agnes Memorial Sanatorium, had been referred to in the paper. Now, if they went a little further and analyzed the conditions, it would be found that the Agnes Memorial derived most of its clientèle from Americans of the middle class, who were mostly blonds. As to the Phipps Institute, it was not stated whether the hospital proper or the dispensary department was referred to. If it were the former, the preponderance of blonds would be accounted for by the large number of native Americans treated. Having referred to the disease among the Irish, the speaker said that all over the world it had been observed that tuberculosis went hand in hand with the time a people had been exposed to it. In remote South Sea islands, where it had previously been unknown, tuberculosis became established and made havoc among the people after the whites came and brought the disease with them. The same had been true in the Philippines. Peoples which had been exposed for a long time to tuberculosis adapted themselves, not only to the country, but to the disease. Thus, the Jews, among whom, as had been remarked, the mortality from the disease was small, had been exposed to tuberculosis for two thousand years. In ancient Greece the blonds had really come from the north. The disease was always fatal when implanted on virgin soil. The Italians, being almost all brunets, should, according to Colonel Woodruff, be comparatively exempt from the disease, but it was a fact that of the Italians returning from this country to Italy, from one fourth to one third were the subjects of tuberculosis. In Sicily, which had formerly been comparatively free from the disease, tuberculosis had in the last ten years become prevalent in consequence of the return of tuberculous emigrants from the United States and the Argentine Republic. So, while a great deal might be said concerning the matter of complexion, there were other factors to be taken into consideration. In Egypt it had been observed that there was little tuberculosis among the Egyptian soldiers, but among Sudanese soldiers it was prevalent. This was to be accounted for by the fact that the Egyptians had been exposed to tuberculosis for two thousand years and more, as shown by certain bone lesions found in mummies; while in the Sudan the disease was a recent importation. It was not, therefore, a question of complexion; but this problem was a sociological problem.

Doctor WOODRUFF hoped that the impression had not been obtained from his remarks that the physical type was of more importance than other causes in the production of tuberculosis; it was only one of a thousand factors. Still, it must be taken into con-

sideration. In slavery days tuberculosis had been rare among the negroes of the South, because they were well taken care of, just as highly prized domestic animals were, by their masters, who realized that if they were suffered to die it would be an economic loss. As soon as they were free, however, and left to shift for themselves, tuberculosis began to start up among them. Many persons had got the idea that the disease was peculiarly fatal to negroes, and that when it had made its appearance they were doomed. This was not the case, for it was just as curable as among whites. If the point made by Doctor Fishberg were true he could not, for his part, understand why in all the slavery days the blacks should not have been more subject to tuberculosis, since they were in constant association with white people among whom the disease was more or less prevalent. Of all the tuberculous curves which he had obtained in Paris, that of Ireland was the only one which went up. The disease had gone on increasing for twenty or thirty years, but about eight or ten years ago it began to decline, just as typhoid fever, the curve of which was parallel, did. Hoffman had stated that the good results noted from the campaign against tuberculosis were really due to the diminution of the diseases causing it. They knew that, during the prolonged political agitation in Ireland, widespread poverty and distress had prevailed, conditions favorable to tuberculosis; but of late there had been increasing prosperity in the country, and the disease had steadily waned.

(To be concluded.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Infection and Resistance. An Exposition of the Biological Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body from Infectious Disease. By HANS ZINSSER, M.D., Professor of Bacteriology at the College of Physicians and Surgeons, Columbia University, New York. Formerly Professor of Bacteriology and Immunity at Stanford University, California. With a Chapter on Colloids and Colloidal Reactions. By Professor STEWART W. YOUNG, Department of Chemistry, Stanford University. New York: The Macmillan Company, 1914. Pp. xiii+546. (Price \$3.50.)

The subjects treated in this volume are of such vital importance, and their developments and literature have become so enormous, that it is no longer possible to handle them in a few chapters in a textbook on pathology or bacteriology. The author of the present work has therefore conferred a benefit on practitioners and students by publishing this exposition of the subjects of immunity, infection, and resistance. The topics discussed are: Infection and virulence; bacterial poisons; immunity, natural, acquired, and artificial; toxin and antitoxin; bactericidal properties of blood serum; cytotoxicity, and sensitization; complements, complement fixation, the Wassermann reaction; agglutination; precipitation; phagocytosis; chemotaxis; opsonins, tropins, opsonic index and vaccine therapy; anaphylaxis; therapeutic immunization; Abderhalden's work on protective ferments; miostagmin reaction; and colloids. The various subjects are handled in a masterly way, the author discussing each topic in a clear and fairly exhaustive manner; the different theories are presented, and those which are at present accepted are indicated. The whole subject of how the body becomes in-

fectured and how it protects itself is very complex; and out of the chaos of theories, methods, and terminology the author has striven, and that successfully, to give the reader an idea of our present knowledge of the matter. Medical students will do well to gain an acquaintance with these subjects as early as possible in their career; and practitioners will welcome this volume, not only for the information which it contains and for the light which it throws on much that is new, but also because it will enable them to explain to the more intelligent of their patients the *raison d'être* of the newer methods of diagnosis and treatment. The book is well printed and adequately illustrated, and the publishers have done well to place the volume on the market at a reasonable price.

Urgent Surgery. By FÉLIX LEJARS, Professeur Agrégé à la Faculté de Médecine de Paris; Chirurgien de l'Hôpital Saint-Antoine; Membre de la Société de Chirurgie. Translated from the Seventh French Edition by WILLIAM S. DICKIE, F.R.C.S., Surgeon North Riding Infirmary, Middlesbrough; Consulting Surgeon Eston Hospital. Third English Impression with 20 Full Page Plates and 1,086 Illustrations, of which 720 are Drawn by Dr. E. Daleine and A. Leuba, and 198 are from Original Photographs. Vol. I, Introductory—Head, Neck, Chest, Spine, Abdomen. New York: William Wood & Co., 1914. Pp. xiv+614. (Price, \$7.)

The first volume of the second English edition of Lejars's work will be welcomed by the English speaking members of the surgical profession. It is translated from the last or seventh French edition which underwent a minute revision and remodelling at the hands of the distinguished author. A number of chapters have been added on important subjects which have recently come into surgical prominence, such as sigmoiditis and perisigmoiditis, acute pancreatitis, and acute dilatation of the stomach. New methods of surgical procedure have been introduced and much that was obsolete has been eliminated. The author's aim has been to bring his book in line with the modern practice of the day, and he has succeeded. The translator has wisely refrained from editing the text and in this way the French methods have come to us in their original and interesting form. The first volume covers the head, neck, chest, spine, and abdomen. Special attention is paid to emergency measures of relief for the various acute traumatic and inflammatory conditions affecting these regions. The operations usually performed by specialists are included, consequently the book will be found useful to any physician called upon to act in an emergency. It is the general surgeon, however, who will be particularly interested in the work and he will here find an excellent amount of French practice from the pen of a practical surgeon and experienced writer.

Laboratory Manual for the Detection of Poisons and Powerful Drugs. By Dr. WILHELM AUTENRIETH, Professor in the University of Freiburg i. B. Authorized Translation of the Completely Revised Fourth German Edition. By WILLIAM H. WARREN, Ph.D., Professor of Chemistry in Wheaton College. With 25 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1915. Pp. xv+320. (Price, \$2.)

This laboratory manual for students and toxicologists is well translated and does not retain any of the German characteristics so prevalent in technical German books rendered into English. The author has omitted nothing that may be desired for work in this special field. The arrangement and classifications are almost ideal. The chapter on blood enhances the value of the book, and the addition of the biological detection of human blood meets a need long felt in toxicologies in general.

Seuchenentstehung und Seuchenbekämpfung. Kurzer Leit-faden für praktische Aerzte und Studierende. Von Prof. Dr. F. NEUFELD, Abteilungs-Vorsteher am Institut für Infektionskrankheiten "Rob. Koch," Berlin. Mit 24 Abbildungen. Berlin und Wien: Verlag von Urban & Schwarzenberg, 1914. Pp. xi+204. (Price, 4.50 Marks.)

This work is a carefully written compendium on the etiology of infectious diseases and the methods of combating them. It includes a chapter on the general considerations of etiology, methods of dissemination of disease germs, the defensive and offensive methods of combating infec-

tious diseases, vaccination in general, and the cleansing and disinfection of the hands after handling infected material and before operations. There are chapters on typhoid fever, paratyphoid fever, botulinus infection and its relation to fish and meat poisoning, bacillary dysentery, amebic dysentery, cholera, bubonic plague, diphtheria, including von Behring's new method of active immunization, tuberculosis, smallpox, epidemic cerebrospinal meningitis, anterior poliomyelitis, Malta fever, malaria, relapsing fever, and typhus fever. The charts and illustrations serve to enhance the text where space will not allow of further detail.

Transactions of the Thirty-sixth Annual Meeting of the American Laryngological Association. Held at Atlantic City, N. J., May 25, 26, and 27, 1914. New York: Published by the association, 1914. Pp. 333.

While most of the papers read at the last meeting of the laryngological association, including the candidates' theses, were naturally of a highly specialized character, a number of topics of more than usual general interest were presented and discussed. Among these we may mention Doctor Delavan's contribution on The Employment of Skiagraphy in the Diagnosis of Enlargement of the Thymus Gland, Dr. Hanau Loeb's discussion of the Influence of the Nose on Eye Affections, and Dr. Marcel Nattier's address on Ozena, Denutrition, Respiration, and Adenoids. The advance in serological science was reflected in Dr. J. L. Goodale's Studies Regarding Anaphylactic Reactions in Horse Asthma, while Doctor Halstead's Report of an Endonasal Operation on Tumor of the Hypophysis emphasized an important relation between nasal and intracranial surgery.

Interclinical Notes.

The March number of the *Nurse* shows that our prophecy that this useful and entertaining publication would interest the physician, has been fulfilled. Some of the best known medical writers in the country are being enlisted as contributors, while the miscellaneous articles and the charming illustrations are sure to catch the professional eye, as well as that of the nurse for which they were, presumably, designed. There can be only prosperity and the happiness of helping others ahead of the vigorous young publisher and editors of the *Nurse*.

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We have heard people of widely differing political and social opinions comment with marked favor on the admirable illustrations of *Leslie's*. To a busy man particularly this periodical is adapted, for a quick glance at the pages gives a conspectus of contemporary history not to be obtained in any other way. The issue for March 4th is well up to *Leslie's* high standard.

* * *

There is an American colony in Moscow which provided Christmas presents for the Russian soldiers invalided at the front; other similarities to and differences from other lands that characterize Russia are described by George Kennan in the *Outlook* for March 3d. Many of the plans for raising money were extremely picturesque; players, for instance, went about the streets in their best known costumes. We learn elsewhere in the *Outlook* that the Belgians are not sitting idly about with their hands out for alms, but are busy helping one another.

* * *

We have had the pleasure of reproducing in our Miscellany some of the matter in the *Review of Reviews* for March. The war and the Panama Exposition share in attention; the cartoons are chosen with an artistic eye; the Italian earthquake, new seeds for food, dairy cattle, and American business receive due discussion. There is also H. S. Gilbertson's stinging article on the coroners.

* * *

In *Current Opinion* for March, the doctor anxious to keep abreast of scientific progress outside of his own special branch, will find comments on the theories of Royal Dixon concerning the "nerves" of plants, somewhat like those of Professor Bose recently discussed in our editorial columns; on the possibility of releasing the energy locked up in the atom; on the new spectroscopic investigation of

the universe; on Sir Oliver Lodge's personal views of telepathy; on military surgery and synthetic chemistry; while literature, especially poetry, music, and all that goes to make life worth while, receive due discussion in a careful and limpid literary style.

* * *

There are two articles in the March *Century* of original character and unusual interest. One of these, by Inez Haynes Gillmore, details the unexpected viewpoint and sensations of a woman at a prizefight. Miss Gillmore saw a great deal, and divined still more that the average "fan" would never discern in the ring. The second paper for which we are grateful is George Bernard Shaw, Harlequin or Patriot? by John Palmer. As an admirer of Shaw from the very first, we hope that the crowds who must wait for an authoritative opinion before having one of their own, will now have no further fear of Shaw's supposed insincerity.

Meetings of Local Medical Societies.

MONDAY, March 15th.—New York Academy of Medicine (Section in Ophthalmology); Yorkville Medical Society; Medical Association of the Greater City of New York; Elmira Clinical Society.

TUESDAY, March 16th.—New York Academy of Medicine (Section in Medicine); Tompkins County Medical Society; Medical Society of the County of Monroe; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburg Medical Association; Oswego Academy of Medicine; Medical Society of the County of Westchester.

WEDNESDAY, March 17th.—New York Academy of Medicine (Section in Genitourinary Diseases); Alumni Association of City Hospital, New York; Schenectady Academy of Medicine; Women's Medical Association of New York City (New York Academy of Medicine); Medico-Legal Society, New York; Buffalo Medical Club; Northwestern Medical and Surgical Society of New York.

THURSDAY, March 18th.—New York Academy of Medicine (stated meeting); Auburn City Medical Society; Geneva Medical Society; German Medical Society, Brooklyn; Æsculapian Club of Brooklyn; New York Celtic Medical Society.

FRIDAY, March 19th.—New York Academy of Medicine (Section in Orthopedic Surgery); Mount Vernon Medical Society; University of Virginia Medical Society; Clinical Society of the New York Post-Graduate Medical School and Hospital; New York Microscopical Society; Alumni Association of Roosevelt Hospital.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending March 3, 1915:

Carter, H. R., Senior Surgeon. Directed to visit the Georgia-Carolina Power Plant to make investigations of conditions caused by the impounding of waters. Foster, A. D., Surgeon. Granted three days' leave of absence from February 27, 1915. Gassaway, J. M., Senior Surgeon. Granted ten days' leave of absence on account of sickness. Hoskins, J. K., Sanitary Engineer. Directed to proceed to Harrisburg, Pa., to consult the records of the State Industrial Commission of Pennsylvania, the State Department of Health, and the City Water Supply Commission relative to industrial plants discharging wastes into the Ohio River. Hurley, J. R., Passed Assistant Surgeon. Ordered to proceed to Alturas, Cal., and vicinity to make observations relative

to prevalence of ground squirrels and possibility of plague infection. **Le Prince, J. A. A.**, Sanitary Engineer. Directed to visit the Georgia-Carolina Power Plant to make investigations, under Senior Surgeon H. R. Carter, of conditions caused by the impounding of waters. **Purdy, W. C.**, Special Expert. Directed to proceed to Havana, Ill., for the purpose of consulting data available at the main laboratory of the State Biological Survey for use in the investigations of the pollution of the Ohio River. **Thompson, W. R. P.**, Acting Assistant Surgeon. Granted one day's leave of absence, February 27, 1915. **Waller, C. E.**, Assistant Surgeon. Granted two days' leave of absence on account of sickness, February 20 and 24, 1915. **White, M. J.**, Surgeon. Detailed to deliver an address on pellagra and hook worm disease at the meetings of the American Life Convention at French Lick Springs, Ind., March 3 to 5, 1915. **Williams, C. L.**, Assistant Surgeon. Directed to stop at the bureau en route to station at Chicago, Ill., for conference. **Wilson, R. L.**, Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Galveston, Texas, and assume charge of the quarantine station. **Witte, W. C.**, Assistant Surgeon. Directed to report to the commanding officer of the Coast Guard Cutter *Manning* for duty during cruise on Alaskan fishing grounds.

Boards Convened.

Boards of commissioned medical officers convened to meet on Monday, March 8, 1915, at 10 o'clock a. m., for the purpose of making physical examinations and conducting the mental examination of candidates for appointment as assistant surgeons in the United States Public Health Service, as follows: Marine Hospital, San Francisco: Detail for the board, Surgeon R. M. Woodward, chairman; Surgeon J. M. Holt, recorder. Marine Hospital, Chicago: Detail for the board, Surgeon J. O. Cobb, chairman; Assistant Surgeon R. E. Wynne, recorder. Marine Hospital, Boston (Chelsea), Mass.: Detail for the board, Surgeon B. W. Brown, chairman; Assistant Surgeon M. V. Safford, recorder. Marine Hospital, New Orleans, La.: Detail for the board, Surgeon R. H. von Ezdorf, chairman; Surgeon R. H. Creel, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending March 6, 1915:

Bloodgood, Joseph C., First Lieutenant, Medical Reserve Corps. Ordered to active duty in the service of the United States on account of an existing emergency, to take effect on or about March 1, 1915, and is detailed as a special professor, Army Medical School, Washington, D. C.; ordered to repair to that city for the purpose of delivering a course of lectures at the school and upon the completion of this duty will return to his home; relieved from active duty on arrival home. **Haines, Edgar F.**, First Lieutenant, Medical Reserve Corps. Granted two months' leave of absence to take effect upon his relief from his present duties. **Hillman, Charles C.**, First Lieutenant, Medical Corps. Ordered to proceed to Fort Myer, Virginia, and report in person to the commanding officer of that post for temporary duty during the absence of Major Douglas F. Duval, Medical Corps. **Miller, Edgar W.**, Captain, Medical Corps. Ordered to proceed to the Walter Reed General Hospital, D. C., and report in person to the commanding officer for observation and treatment. **Powell, William A.**, Captain, Medical Corps. Will proceed to the Presidio of San Francisco, Cal., and report in person to the commanding officer, Letterman General Hospital, for observation and treatment. **Stillman, George P.**, First Lieutenant, Medical Reserve Corps. Upon arrival in the United States ordered to proceed to Benicia Arsenal, California, and report in person to the commanding officer of that arsenal for duty.

The following named officers of the Medical Reserve Corps are ordered to active duty in the service of the United States on account of an existing emergency, to take effect March 16, 1915: First Lieutenant James V. Falisi, First Lieutenant Stevens T. Harris, First Lieutenant J. Samuel White, First Lieutenant William H. Seemann. Each of the officers named upon the completion of his duty

as a member of the board appointed in orders from the War Department, will return to his home, and upon arrival there stand relieved from active duty in the Medical Reserve Corps.

Births, Marriages, and Deaths.

Married.

Laughlin-Lewis.—In Westfield, Mass., on Wednesday, February 24th, Dr. John M. Laughlin and Miss Grace M. Lewis.

Died.

Bain.—In Kenton, Ohio, on Monday, February 22d, Dr. Frank D. Bain, aged sixty-five years. **Baldwin.**—In Boston, Mass., on Thursday, February 25th, Dr. Henry Cutler Baldwin, aged fifty-six years. **Barnham.**—In Washington, D. C., on Tuesday, February 23d, Dr. E. T. Barnham, aged seventy-three years. **Bradley.**—In Roxbury, Va., on Friday, February 26th, Dr. Tazewell Bradley. **Brown.**—In Oshkosh, Wis., on Saturday, February 20th, Dr. Frederick W. A. Brown, aged fifty-three years. **Button.**—In Holland, N. Y., on Wednesday, February 24th, Dr. Clayton A. Button, aged sixty-two years. **Caldwell.**—In Pulaski, N. Y., on Wednesday, February 24th, Dr. Henry W. Caldwell, aged seventy-four years. **Campbell.**—In New York, on Monday, March 1st, Dr. James Peckham Campbell, aged eighty-two years. **Canine.**—In Excelsior Springs, Mo., on Tuesday, February 16th, Dr. Thomas Claybourne Canine, aged sixty years. **Cannon.**—In Eugene, Ore., on Thursday, February 18th, Dr. Colbert H. Cannon, aged sixty-nine years. **Collar.**—In Alameda, Cal., on Sunday, February 21st, Dr. Adoniram Judson Collar, of Yreka, Cal., aged sixty-three years. **Donnelly.**—In Nish, Serbia, on Wednesday, February 24th, Dr. James F. Donnelly, of New York, aged forty years. **Farnham.**—In Altoona, Pa., on Tuesday, February 23d, Dr. Robert T. Farnham, of Washington, D. C., aged seventy-three years. **Gainey.**—In Kansas City, Mo., on Thursday, February 18th, Dr. John H. Gainey. **Gardner.**—In McKeesport, Pa., on Wednesday, February 24th, Dr. William J. Gardner, aged forty-four years. **Hayden.**—In Lynn, Mass., on Monday, February 22d, Dr. David Hyslop Hayden. **Herron.**—In Pensacola, Fla., on Sunday, February 21st, Dr. James S. Herron. **Holst.**—In Rossford, Ohio, on Monday, February 22d, Dr. E. B. Holst, aged forty years. **James.**—In Philadelphia, on Wednesday, February 24th, Dr. Walter M. James, aged sixty-five years. **King.**—In Elmleigh, Waterville, Quebec, on Friday, February 10th, Dr. Reginald A. D. King, aged seventy years. **Klaer.**—In Philadelphia, on Saturday, February 27th, Dr. Frederick H. Klaer, aged thirty-seven years. **Lack.**—In Brooklyn, N. Y., on Friday, February 26th, Dr. Charles E. Lack, aged forty-three years. **Land.**—In Norfolk, Va., on Tuesday, February 23d, Dr. H. Irving Land, aged twenty-seven years. **Langg.**—In New Orleans, La., on Saturday, February 20th, Dr. Oscar R. Langg, aged seventy-nine years. **McGowan.**—In New York, on Sunday, February 28th, Dr. John Patrick McGowan, aged forty-nine years. **Nehrbas.**—In Indianapolis, Ind., on Sunday, February 21st, Dr. J. G. Nehrbas, aged forty-five years. **Nelson.**—In China, Me., on Friday, February 19th, Dr. Gustavus J. Nelson, aged sixty-nine years. **Reed.**—In Honesdale, Pa., on Sunday, February 21st, Dr. Dwight A. Reed, aged ninety-one years. **Richardson.**—In Jacksonville, Fla., on Thursday, February 18th, Dr. P. N. Richardson. **Scribner.**—In Bloomington, Ind., on Friday, February 19th, Dr. Charles A. Scribner, of Louisville, Ky., aged fifty-eight years. **Segur.**—In St. Legier, Switzerland, on Sunday, February 14th, Dr. Benjamin Avery Segur, aged eighty-two years. **Sutherland.**—In Benoit, Miss., on Saturday, February 20th, Dr. H. L. Sutherland, aged sixty-five years. **Tillinghast.**—In Mooring's Port, La., on Tuesday, February 23d, Dr. Edwin L. Tillinghast, aged seventy-seven years. **Trees.**—In Maxwell, Ind., on Friday, February 19th, Dr. Paul E. Trees, aged thirty-six years. **Van Vorrakis.**—In New York, on Thursday, February 18th, Dr. A. E. Van Vorrakis, aged seventy-seven years.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843.

VOL. CI, No. 12.

NEW YORK, MARCH 20, 1915.

WHOLE No. 1894.

Original Communications.

INTESTINAL STASIS, BANDS, KINKS, AND MEMBRANES.

From a Study of One Hundred Autopsies.

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Philadelphia,
AND ALLEN J. SMITH, M. D.,
Philadelphia.

(From McManis Laboratory of Pathology, University of Pennsylvania.)

The purpose of this paper is to correlate the various phases of this subject, and including as it does the study of one hundred autopsies, to arrive at some conclusions of value to the general practitioner. It is, therefore, necessary briefly to consider the anatomy and physiology of the gastrointestinal tract and to review the findings of various workers on the subject.

Embryonal development. It is to be noted, as to the embryonal development of the gastrointestinal tract with special reference to the change in position of the colon, that the intestinal tract starts as a straight tube by the infolding and constriction of the endoderm; this soon differentiates into the esophagus, stomach, small and large intestine (Fig. 1). The large intestine first forms part of the posterior half of the intestinal loop and is in the median plane. The loop becomes rotated so that its plane is transverse (Fig. 2), the anterior half is on the right side and the posterior half on the left. The large bowel thus comes to lie anterior to the small intestine (Fig. 3). The process is not only one of migration, but of growth as well, with a fixed point in the mesentery about the origin of the superior mesenteric artery. The cecum in this way proceeds across the abdominal cavity to the right and downward, and occupies its final position at the right pelvic brim (Fig. 4). During this procedure it makes a rotation, so that the ileum, originally continuous with the colon from above and to the right, finally comes to lie on the left. This rotation is compensated for by the growth in length of the small intestine; the process is very gradual otherwise torsion would result.

Physiology. In a review of the literature on the physiology of the gastrointestinal tract, we find many important factors bearing on the subject, a few of which must be mentioned. In this review the work of Cannon has been freely used. The pyloric sphincter is clearly separated from the cir-

cular coat of the duodenum by a distinct septum of connective tissue. Gastric waves do not pass on to the duodenum, but stop at the pylorus. A greater energy of gastric contraction is required for proteins and fats than for carbohydrates. The adjustment of the filling of the stomach of intraabdominal pressure is compensated for by the relaxation of the abdominal walls. The presence of peristaltic waves in the right half of the stomach and their absence on the left half, indicates two separate functions of the stomach. The left half is mainly a reservoir, while the active right half mixes the food, exposes it for absorption, and passes it along for further digestion. The presence of proteins near the pylorus distinctly retards the passage of carbohydrates near the cardiac end, while fat retards both proteins and carbohydrates. A state of repletion in the upper half of the small intestine inhibits the discharge from the stomach. The theory of acid sphincter control is important. Irritation of the colon by such substances as croton oil markedly inhibits gastric discharge, and the passage of food through the small intestine is greatly retarded. General outside stimuli produced by surrounding elements of hate, passion, fear, and even love have the same effect. The function of digestion is accomplished in the small intestine by the peristaltic wave and the rhythmic contraction of the intestinal musculature. The rhythmic contractions propel the blood in the portal circulation and act like a heart in promoting the flow of lymph in the lacteals. When an obstruction in the intestine occurs, an activity is aroused which must lead to compensation for the obstruction. In a sharp bend or kink produced experimentally, food is pushed around by the vigor of the peristalsis. In experimental animals food is almost never delayed in the small intestine, and the chances are almost wholly in favor of the large intestine under normal conditions. Owing to the richness of bacteria in the cecum and colon, fermentation takes place, and the last bit of nutriment here disappears. Water is removed in the proximal colon. From the midportion of the transverse colon back to the cecum the most common movement is antiperistalsis, which is periodical in nature. One tonic contraction of the ascending colon may force out its entire content. The act of defecation is accomplished primarily by the increase of intraabdominal pressure, the result of voluntary contraction of the abdominal wall and diaphragm.

Chronic intestinal stasis. Sir Arbuthnot Lane is justly considered the pioneer in the work on intestinal stasis. In the past three or four years he has written some thirty-five papers on the subject.

He considers the intestinal tract to be a drainage tube and the large bowel from the appendix to the rectum a useless and dangerous structure. He says that "stasis is the result of the descent of the gut, mainly the ileum and colon, held up at certain points by acquired bands"; these he describes as "the crystallization of the lines of strain" (Fig. 5). He believes that these bands are evolutionary, originating in infancy from too frequent and too much feeding. He remarks that "it is impossible to eradicate from some minds that these bands are not inflammatory in nature." He would attribute many if not all diseases from pyorrhæa alveolaris to tuberculosis and cancer to chronic intestinal stasis. Finally, as a panacea for human ailments, he either short-circuits the ileum into the rectum or removes the colon in its entirety (Fig. 6). Curiously enough, the one objection he has to the latter procedure is the development of postoperative adhesions.

By chronic intestinal stasis, Lane says "I mean a delay of the contents of the gastrointestinal tract involving the absorption into the circulation of a quantity of toxin greater than can be dealt with by the organism," and in speaking of various diseases he says, "I believe that no one can become infected with tuberculosis or arthritis deformans unless that individual's resisting power is lowered by the auto-intoxication of chronic intestinal stasis. Auto-intoxication is an important, if not the most important, factor in the production of disease." The mechanism and pathology of stasis, as described by Lane, may be summed up as follows: Owing to too frequent feeding and the erect posture, folds of the peritoneum at certain points become prominent; these are the crystallizations of the lines of strain. The first one is notably at the first part of the duodenum extending to the under surface of the liver, the second at the duodenojejunal junction; the next in the mesentery of the ileum about two inches from the ileocecal valve with acquired folds along the appendix on the right side of the cecum (Fig. 7); next at the hepatic and splenic flexures and the first and last kink at the sigmoid (Figs. 8 and 9). These bands are the expressions of Nature correcting the tendency of the intestine, notably the ileum and colon, to descend; they are acquired and evolutionary, not inflammatory. Where these folds pass over the gut and put traction on it, kinks in the intestine result and thus add to the stasis, since the bowel in front of the band dilates. Folds or bands from the gallbladder to the duodenum produce a kink at the pylorus and delay in the stomach. Kinking at the duodenojejunal junction dilates the duodenum when ulcer, gallstones, and even cancer results. The descent of the ileum into the pelvis produces puddling in the small bowel, exaggerated by kinking of the ileocecal valve. Finally, folds at the brim of the pelvis in the mesentery of the sigmoid produce a wide U shaped colon (Fig. 8). While Lane has developed a pathology and mechanism all his own, in none of his papers does he take into consideration the various membranes and bands described by other authors. In order to cover the subject from its many sides, it is necessary to insert at this point a brief description of these membranes.

Jackson's membrane. This is a fold described by Jackson in 1908, as a veil or cobweblike membrane

arising from the right parietal peritoneum and extending across the ascending colon as far as the cecum (Fig. 10). This veil does not resemble our conception of adhesion, but is more like a thin pterygium. This membrane was noted in the pathological reports of autopsies by Virchow, but no significance was attached to it at that time.

Membrane of Jonnesco and Juvara. In 1894, Jonnesco described the cecal folds and fossæ (Fig. 11), from an anatomical standpoint. Covering a review of his work we feel that what has gained prominence as the Jonnesco membrane is nothing more than the superior ileocecal fold as we understand it now. We did not encounter any case where this fold had developed to any undue prominence, but we should not deny it a rare occurrence.

Bands of Reid. Reid has described several bands in fetuses; one from the cecum to the appendix, which he calls the cecoappendicular band, and one from the mesentery of the ileum over the brim of the pelvis to be lost in the pelvic peritoneum in the male and in the broad ligament and ovary of the female. This he calls the genitomesenteric fold (Fig. 12).

Duodenojejunal junction. The duodenojejunal fossa is covered by a fold of peritoneum, which is in reality the free edge of the peritoneal covering of the duodenum as it emerges from its retroperitoneal position. This fold may be spoken of as the superior duodenal fold and fossa, since there is occasionally an inferior fold and fossa one to two inches below this. This latter fold runs from the left side of the jejunum usually half way over the jejunum and occasionally continues to the right side, forming a complete veil-like membrane across it (Fig. 13).

Cecal fossæ and folds. The first membrane runs from the left aspect of the cecum over the ileocecal junction to be lost in the mesentery of the ileum at this point. This produces a small fossa spoken of as the superior ileocecal fossa and fold. Running in the same direction, but below the ileocecal junction, is another fold and fossa, the inferior ileocecal fold and fossa, or bloodless fold of Treves. Retroceally the fold runs from the mid portion of the under surface of the cecum to be lost on the brim of the pelvis, producing a right and left retrocecal fossa (Fig. 14).

The folds and fossæ just described in a brief way, may be said to be more or less constantly present in everybody, at least in all examined at the autopsy table, with varying modifications as to their prominence and as to their positions. The possible exception to this is the membrane of Jackson, which is the exception rather than the rule.

Cæcum mobile. As originally described by Hausmann cæcum mobile is an abnormally movable ascending colon and cecum, due to a strongly developed mesentery which merges into the mesentery of the ileum. The term cæcum mobile, as used by some writers, includes any exceptionally movable cecum due mostly to ptosis. We think that the term should be strictly applied in its original meaning.

Infantile cæcum. Fig. 15 shows a condition found in an infant. Here the cecum has traversed to its proper place, being fixed to the posterior wall.

The ascending colon and part of the transverse colon as far as the gastocolic omentum had a short mesentery without any fixation. Note the appendix coming off from the tip of the cecum. This condition may persist. There is an arrest of development

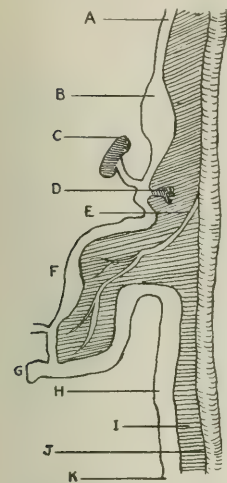
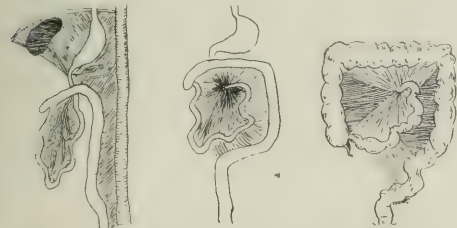


FIG. 1.—Development of intestinal canal. A straight tube in the median plane by the infolding of the endoderm (after Cunningham). A, Esophagus; B, stomach; C, liver; D, pancreas; E, superior mesenteric artery; F, small intestine; G, cecum; H, colon; I, mesentery; J, aorta; K, rectum.

of the cecum and ascending colon, so that in the adult, instead of the cecum lying on the pelvic brim, it is half way between the brim and the liver. Then it is small in size; the ascending colon appears relatively short. It has a short appendix from the tip, due to the failure of growth of the cecum. Upon first opening the abdomen, the small intestine completely covers this type of colon. Whether any obstruction results we are not prepared to say, but the position of the appendix would be important in connection with appendicitis.

Study of one hundred autopsies. From this study we should divide peritoneal folds into three groups: First, peritoneal anomalies; second, developed folds (hypertrophies or "crystallization of the lines of strain"); third, peritonitis; subdivided first into acute fibrinous peritonitis, (a) nonoperative and (b) operative; second, chronic fibrous peritonitis, (a) the results of acute peritonitis, (b) a gradual fibrosis.

This division is mainly made upon the gross appearance. Microscopical appearance varies only in minor detail. Peritoneal anomalies appear as normal folds of peritoneum, mesenteries, or omentum. They are usually thin and have a normal bloodvessel distribution (Fig. 10). They occupy relatively the same positions in all cases. Developed folds are thickened normal folds and always peritoneal in nature. The thickening is in the subendothelial connective tissue and is made up of an increase in that



FIGS. 2, 3, 4.—Development of intestinal canal; early migration of the colon to the left and to the right. Further migration with colon anterior to the small intestine. Final migration to the pelvic brim with rotation and fixation (after Cunningham).

connective tissue (Fig. 16), likened, we believe, to the hypertrophy of parenchymatous structures. Peritoneal inflammations should be easily recognized, the chronic form occurring as radiating and irregularly thickened lines—ileum to cecum—(Fig. 18), as coaptations of parts at abnormal situations (Fig. 17), and as bands (Fig. 18).



FIG. 5.—Crystallization of the lines of strain (after Lane).

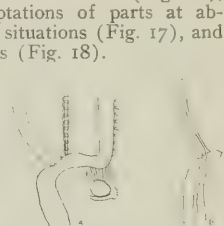


FIG. 6.—Lane's operative procedures: (a) Shortcircuited ileum into the rectum; (b) the same with colectomy (after Lane).

Peritoneal anomalies. We should include under this heading all alterations or unusual developments of folds or peritoneum which are commonly seen (Fig. 10), such as the cecal folds, Reid's folds, and Jackson's membrane; secondly, any fold of peritoneum which in its general appearance may be lik-



FIG. 7.—Crystallization of lines of strain about the cecum, in the mesentery of the ileum, the appendix, and along the right parietes (after Lane).

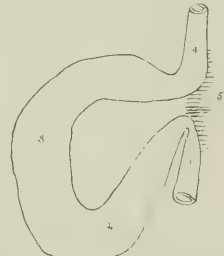


FIG. 8.—Sigmoid lines with a wide U shaped sigmoid (after Lane).

ened to these. In reviewing the abdominal cavities, one is struck by the wide variations in these folds. They occur at many different situations and follow many different types. For instance, Jackson's membrane, to which we would give the term parietopericolic ascending fold, may extend only part way over the cecum or may completely encircle the cecum and be lost in the peritoneum on the left side of the colon. In one instance it was observed covering the entire ascending colon, including the cecum. This type of fold, we are convinced, is the result of the irregular fixation of the ascending colon in its circuit from the left side of the belly to the right. In this same manner the mesentery of cecum

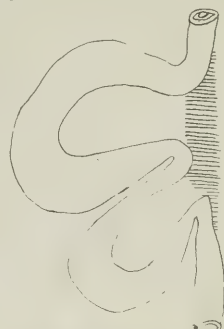


FIG. 9.—Sigmoid lines producing marked kinking at the sigmoid (after Lane).

mobile may be accounted for. These peritoneal anomalies are therefore embryonal and not inflammatory in type.

In the second group developed folds of peritone-

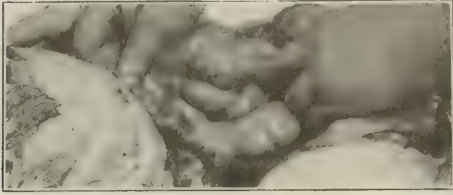


FIG. 12.—A well defined Jackson's membrane, 3. Ascending colon, 1; hepatic flexure, 2. This runs from above downward and has been well likened to a veil (Orig.).

um or the crystallizations of the lines of strain as described by Lane, we consider to be peritoneal hypertrophies, and they may readily be understood as

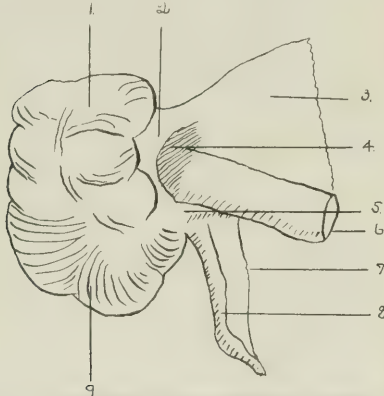


FIG. 11.—Cecal fossa and folds as described by Jomnesco. 1, Ascending colon; 2, ileocecal fold; 3, mesentery; 4, anterior ileocecal fossa; 5, descending fold; 6, ileum; 7, mesosigmoid; 8, appendix; 9, cecum (after Jomnesco).

attempts on the part of Nature to overcome the descent of the intestine. This type of fold should

therefore occur in such positions as would likely support the intestine and in the class of cases in which visceroptosis is prominent. We have found these folds occurring in the following situations: From the pylorus to the under surface of the liver (hepatopyloric), along the right border of the cecum and ascending colon in the parietal peritoneum at its attachment to the intestine (parietocolic, Fig. 16). This type is quite distinct from Jackson's membrane. Here the peritoneum is two, three,

and sometimes four times as thick where the strain is greatest, as it is, for instance, over the abdominal wall. This thickening should never run for any distance over the intestine. The next and last situation for lines of strain is at the hepatic and splenic flexures. Only in these situations are we able to confirm the crystallizations of Lane, but we feel that they represent just what Lane describes.

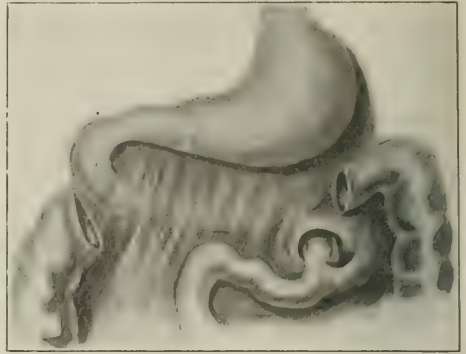


FIG. 13.—Duodenojejunal fossa and folds, superior fold of peritoneum with its fossa. Inferior fold running to the mid line of the jejunum. This may run to the right of the jejunum, producing a decided constriction (Orig.).

Developed hypertrophies are not met with along the descending colon, because this portion of the gut is usually narrow and free from fecal content. Attention has been called by other writers, especially the surgeons, to the finding of the descending colon free and narrowed. We should like to add that this is almost a constant finding at autopsy, so much so that it would seem at times as though actual atrophy of this portion of the tube existed. It may be well



FIG. 14.—Folds and fossa of the cecal region. The superior ileocecal fold from the mesentery of the ileum above over the cecum carrying bloodvessels. The inferior ileocecal fold from the cecum and appendix (the bloodless fold of Treves). This produces a superior and inferior ileocecal fossa. The inferior fossa is formed partly by the mesentery of the appendix (nomenclature after Petersen (Orig.)).

at this point to take up the other "lines," as described by Lane. At the end of the duodenum the constricting factor is the normal superior, more often, or inferior duodenojejunal fold (Fig. 13), which we have never seen hypertrophied. The ileac

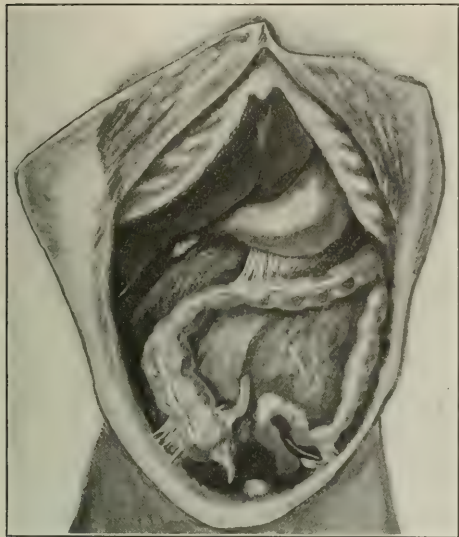


FIG. 15.—An infant with fixation of the colon at the pelvic brim; a small mesentery as far as the gastro-ileic omentum without fixation at any point (Orig.).

"line" near the ileocecal valve is due, we think, to the contraction of Reid's genitomesenteric band. This produces a pull toward the pelvis, and not upward, which is an entirely different mechanical principle from Lane's idea. The "lines" at the sigmoid are condensations of peritoneum from the mesen-



FIG. 16.—Developed hypertrophy or crystallization of the lines of strain. Condensation of the parietal peritoneum at 3, supporting a ptosis of the ascending colon at 2, abdominal wall reflected outward, 1 (Orig.).

tery of the sigmoid to the left pelvic wall or to the left ovary. This, we consider the same as Reid's band on the right, and suggest the terms right and left genitomesenteric bands (Fig. 21).

Peritonitis. The term peritonitis is limited to

those cases which have to deal with adhesions. Acute fibrinous peritonitis may be local or general. Local forms are most commonly met with in the pelvis, about the appendix, gallbladder and ducts, stomach and duodenum, and lastly at any other situation. General peritonitis usually follows a local type. In either form the fibrin is removed and is

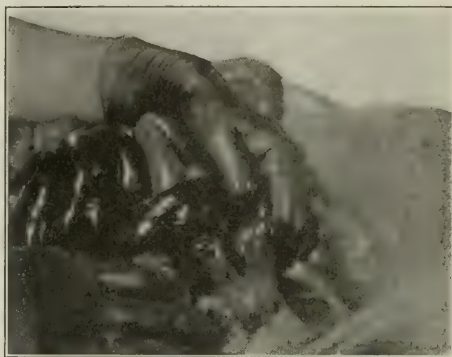


FIG. 17.—Inflammatory adhesion from the ileum to the pelvis. This has produced an ileac kink at 3; 1, dilatation of the ileum beyond the kink; 2, the operator's hands supporting the cecum; 4, gangrenous gut due to mesenteric thrombosis (Orig.).

replaced in identical situations by organization of fibrous tissue and the formation of adhesions. These adhesions may cement large areas by coapta-

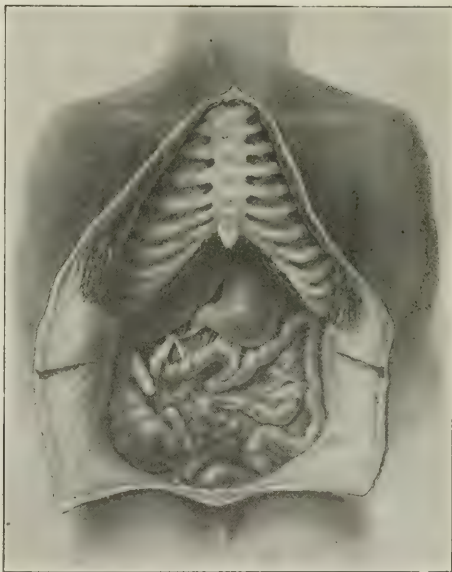


FIG. 18.—This represents several conditions in the one case. Reid's bands ileum to pelvis, high position of ileocecal orifice, with inflammatory adhesions from ileum to cecum above appendicular mesentery. Cholecolic band adhesions, holding up the transverse colon at two separate points with marked angulation, ptosis, and dilatation. A complete veil of the inferior duodenojejunal fold. (Sketch by Faber.)

tion or they may form as bands. Due allowance must be made for contraction and degeneration of the fibrous tissue. It is the bands which concern us. Those in the pelvis bind the coils of the small intestine to the sigmoid, the rectum, and to the



FIG. 19. The result of cholecolic adhesions; transverse colon dilated on both sides of the adhesion, which produced narrowing of the normal lumen (Orig.).

uterus and annexa. Those about the appendix may be in any or all directions, are of importance only when attached to the ileum or its mesentery, and when the appendix is long and occupies a retrocecal position well up and to the right. This may produce decided constriction of the ascending colon. The adhesions about the gallbladder, when diffuse,



FIG. 20. Chronic adhesive peritonitis, omentum to cecum, following splenectomy. This resulted in a slight torsion of the cecum and ascending colon inward.

usually bind the bladder close to the liver and do not affect the intestine, but as bands they may extend to the stomach, duodenum, and transverse colon (Fig. 18). In this involvement marked traction is exerted on the gut or stomach, producing sharp angulations and wide dilatations on either side

of the adhesions (Fig. 19). We have not observed any case where adhesions were marked at other situations where one could be reasonably certain that an acute fibrinous peritonitis had preceded.

Acute fibrinous peritonitis following operation is not necessarily a septic peritonitis, but merely the first process in the complex repair. From this acute form, chronic fibrous peritonitis results in the same way as that just considered.

Operative adhesions may occur anywhere, but of course are most usual about the site of operation, appendix, gallbladder, stomach, or in the pelvis. The omentum is often found adherent to some portion of the intestinal tract (Fig. 20). This at times serves a good office, but may at others be decidedly detrimental. No law governs the formation of these adhesions, except the condition at operation and the skill of the surgeon. It is useless to fill the abdom-



FIG. 21. Represents situations for bands, choleloduodenal and cholepyloric, duodenojejunal; gent mesenteric, ascending right parietocolic, right parietopericolic, hepatic and splenic flexures, parietosigmoid, left gentomesenteric.

inal cavity with materials which are foreign to it, in order to suppress adhesions; it must be recognized that to handle the gut excessively will result in abrasions; it must be recognized that to pinch the peritoneum with forceps, especially rat tooth forceps, will cause injuries to the peritoneum; in accepting this, the surgeon must bear in mind that it is Nature's law to heal injuries and that the greatest part of repair is by fibrosis. It may be said that the greater the injury to the peritoneum at the time of operation, the greater will be the number of adhesions at a later date, and *vice versa*, the less done at operation in the way of unnecessary handling, sponging, clamping, cauterizing, and the many other procedures injuring the peritoneum,

the fewer will be the adhesions, and thus the distressing results of adhesions will be relegated to the past.

Chronic fibrous peritonitis, by gradual fibrosis, is a term which includes an important group and one over which much discussion has been waged. The etiological factor is a toxin, either bacterial or chemical (cell metabolism and catabolism), and the pathway, the lymphatics of the subperitoneum. It has long been known that *Bacillus coli* may traverse the intestinal coats and go to some distance along the peritoneum (by the lymphatics); lodging from place to place, it may well set up a low grade of inflammatory reaction, the end product of which would be fibrosis. This reaction, we feel sure, explains some bands (adhesions) and even coaptations of peritoneal surfaces at certain fixed positions. These may be described as follows, duodenum to gallbladder and *vice versa*. Here it is well known that



FIG. 22.—Ileac kink. 1, Cecum; 2, distended ileum beyond the narrowed ileum; 3, produced by fibrosis of the genitomesenteric fold, 4.

infection will travel along the mucosa of the ducts and in the lymphatics in circumductal situations, and acting as irritants spread out in the peritoneum toward the duodenum, blazing trails of fibrosis. At the ileocecal region, aside from adhesions purely the result of appendicitis (this latter class is numerous), this lymphatic extension is, we believe, prominent. Thus Reid's band (a condensation of peritoneum) carries an extra supply of lymphatics; these lymphatics become infected by extension from a salpingitis, and eventually fibrous tissue forms in the peritoneum following the lines of the original band with contraction of that fibrous tissue. Thus in some, not all, "a form of Lane's kink" is produced (Fig. 22). The sixth most prominent type of this form of adhesion is the so called double barrelled shotgun formation at the flexures of the colon. This may be due to enveloping embryonal membranes (we have never encountered a case); we have frequently found it the result of adhesions which, we believe, have been developed by the route of the lymphatic infection and fibrosis.

Kinks. Kinks or angulations of the intestine occur as the result of traction by these various types of bands. They may occur as simple angles with or without accompanying torsion. The latter are always more likely to lead to partial obstruction.

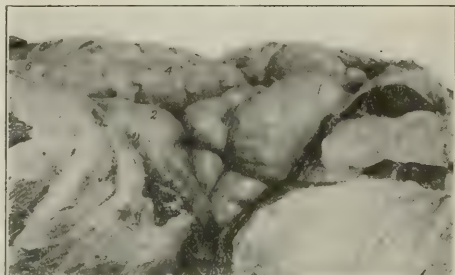


FIG. 23.—Hepatic flexure kink. 1, Distended ascending colon; 2, transverse colon; 3, kink at flexure held up by peritoneal "hyper trophy"; 4, descending limb of a mid line ptosis of transverse colon; 5, ascending limb; 6, stomach.

They vary in the acuteness of the angle, and the more acute the angle, the greater the tendency to obstruction. They occur along the tract, notably at the following points: Midgastric, pylorus, duodenojejunal junction, along small intestine, at the ileocecal region (Fig. 22), at the flexures (Fig. 23), and along the sigmoid. At the pylorus, stomach, and flexures of the colon, when not inflammatory, kinks are due to the traction of the lines of strain. They are found also at the duodenojejunal junction owing to the duodenojejunal fold, at the ileocecal and sigmoid to genitomesenteric folds. Lateral parietocolic folds do not produce kinks. Parietopericolic folds do not produce kinks, but when marked or when contracted, may so compress the colon that the lumen is markedly reduced and ob-

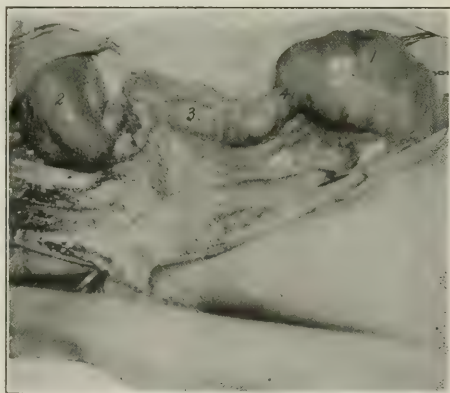


FIG. 24.—Narrowing of ascending colon and hepatic flexure produced by a tight ascending right parietopericolic fold. 1, Distended cecum; 2, distended transverse colon; 3, narrowed ascending colon; 4, lower border of membrane.

struction results (Fig. 24). A kink may occur at the lowest point of the transverse colon in a mid line coloptosis, especially if this point is held down

by a fixation as in Fig. 25. In this case an omental inguinal hernia was operative.

Mechanism of obstruction and stasis. Many of these bands with marked kinks produce no stasis because peristaltic activity is increased and a compensation peristalsis is established. We are convinced that this is what happens in most cases. The compensation is established and maintained by a hypertrophy of the muscles of the intestinal portion involved. Granting this factor, stasis—we apply this term as originally used by Lane—does occur. It is brought about by several factors; first, actual contraction of the band or membrane may mechanically, and relatively too, rapidly reduce the lumen of the gut, either directly or by torsion, and compensation is not established. Compensation may be established and too great a load, overfeeding or improper feeding, is thrown on the muscle at the involved area with resulting fatigue and of course dilatation. This may gradually improve. With frequent recurrences of the load, recovery is not as



FIG. 25.—Kink of transverse colon at the lowest point of a mid line coloposis. 1, Distended cecum; 2, descending limb; 3, kink produced by the pull of an inguinal omental hernia; 4, ascending limb of the ptosis.

complete, and so in the course of time permanent dilatation results with loss of compensation. Add to this idea, which is purely mechanical, degeneration of that intestinal muscle, and dilatation is even greater and more permanent. With this dilatation and stasis, intestinal toxemia sets in, brought about by absorption of both chemical and bacterial toxins. Add to this mechanism a weakening of the lower abdominal muscles, as suggested by a number of workers, with subsequent visceroptosis, and the mechanism becomes even more pronounced. This factor added, defecation is difficult, kinks are exaggerated by the weight of the fallen intestines held up at fixed points, stasis time is increased, toxemia is pronounced, and symptoms are prominent. The development of this symptom complex may be readily explained, by a review of the physiology of the gastrointestinal tract.

We have made no attempt at diagnosis or treatment in this paper. Animal experimentation is now under way, applying the principles of the paper, and will be reported later. Experience would impress this fact, however, that every case is a study in itself, and before treatment, especially surgical, is undertaken, a thorough knowledge of the principles of the case must be obtained. It is obvious that

simple parietopericolonic membranes (Fig. 10) are harmless and should be left alone. On the other hand, if we simply severed such inflammatory adhesions, as in the case of the gallbladder to the duodenum (Fig. 18), as was done at autopsy, a midline coloposis would result, and possibly the patient would be worse off than before. Then, too, in dealing with these anomalies, Nature's habit of adaptability must be considered. The intestine may perfectly compensate for a bad kink, and if this was suddenly relieved, loss of support might result in torsion, ileus, or volvulus. These and many other factors from practical application we hope to deal with later on.

CONCLUSIONS.

1. We should adopt a uniform nomenclature.
2. Lane's work should be carefully reviewed.
3. The status of various membranes should be fixed.
4. The physiology of the gastrointestinal tract, as it refers to peristalsis, should be clearly understood.
5. These "bands" are of three types; congenital, developed hypertrophies, and inflammatory.
6. Intestinal toxemia is common, the result of stasis, brought about primarily by the traction of these various bands, producing intestinal hypertrophy, with secondary fatigue or degeneration and dilatation.
7. The condition occurs in the well nourished as well as in the neurasthenic.
8. Intestinal ptosis occurring with general visceroptosis is merely an exaggerated type of the simpler forms.
9. The various possibilities must be clearly understood, and each individual case carefully studied before any treatment is inaugurated.
10. When surgical means are applied, the mechanism must be clear, else the result will be worse than the original condition.
11. Finally, at operation the entire abdomen must be carefully explored, because these conditions rarely affect one region without another.

HEMATOGENOUS INFECTIONS OF THE KIDNEY.*

A Summary of Our Present Knowledge.

By GEORGE EMERSON BREWSTER, M. D.,
New York.

It was with considerable hesitation that I accepted an invitation to write a short paper on blood infections of the kidney. My reluctance was due solely to the fact that I have already presented several communications upon the subject, and I fear that I shall be unable to add anything new. Of these previous reports, one dealing with the clinical history of the condition was read before the *Association française de chirurgie*, in Paris, October 4, 1910, another presenting the known facts bearing upon the etiology and pathology of the process

*Read before the Genito-urinary Section of the New York Academy of Medicine, February 17, 1913.

formed the topic of the *Oration in Surgery* delivered at the 1911 meeting of the American Medical Association, and one combining both the pathological and clinical aspects of the disease was presented at the last meeting of the International Congress of Medicine in London, July, 1913. I trust my readers will pardon me if I quote largely from this last communication, as it represents my present views, and has not been published in this country.

PATHOLOGY.

The frequent association in autopsy findings of renal suppuration with cases of pyemia, septicemia, erysipelas, endocarditis, and other fatal septic conditions, had been observed by pathologists for many years before its significance was appreciated. It was perhaps Lannelongue who, after observing this association in seven out of ten cases of osteomyelitis, first emphasized the importance of renal infection through the blood current, independent of the fatal general blood infections.

In 1889, Albarran and later, Pernice and Scagliosi, demonstrated that moderate quantities of pathogenic organisms could, under certain circumstances, circulate in the blood without necessarily producing gross lesions, and might eventually be excreted through the kidneys without, or with but slight structural changes in these organs. Under other conditions lesions were produced which would vary from a slight cloudy swelling or glomerular nephritis to complete destruction of the renal tissue by purulent infiltration or necrosis.

Israel, in 1891, called attention to the possibility of grave renal suppuration being due to microorganisms entering the blood current from comparatively mild local infections as furuncles, paronychias, carbuncles, etc., and Jordan, some years later, reported twelve cases in which the original source of infection was definitely traced to such insignificant peripheral lesions. Later clinicians, notably Israel, Semon, and Alexander Johnson, called attention to the significant fact that in these blood infections the disease was often unilateral, and that even the gravest suppurative lesions could be successfully attacked surgically so long as the opposite kidney remained functionally competent. This fact was subsequently demonstrated to be correct by the more general employment of cystoscopy and ureteral catheterization.

Shortly after these reports appeared and before I was familiar with them, my interest in the subject was awakened by four or five examples of the severer or fulminating type of the disease, all of which proved fatal. Three autopsies demonstrated that the disease was unilateral and consisted in multiple embolic suppurative lesions, which in the observed cases, resulted in complete destruction of the kidney, and an overwhelming and fatal toxemia.

With a view to determining the factors which caused a given blood infection to attack a single kidney, and to gain an opportunity of studying the lesions, I undertook a series of animal experiments in the research laboratory of the College of Physicians and Surgeons. In my first series of experiments, the procedure consisted in producing a mild bacteremia in rabbits and dogs by injecting into the

ear vein cultures of various pathogenic organisms, and lowering the resistance of one kidney by various degrees of trauma, by the introduction of a foreign body simulating stone, or by the production of an artificial hydro-nephrosis.

In my second series, undertaken several years later, an effort was made to determine the effect of anemia, passive hyperemia, and other vascular changes in lowering the resistance of a kidney to blood infection.

The results of these experimental studies were published in two or three short preliminary reports. Without going into detail as to the individual experiments, I will quote two paragraphs from my last report which will summarize the results. Following the first series of sixteen cases, I stated that:

A review of these experiments will show that none of the control animals which had received a moderate dose of pathogenic bacteria directly into the circulation without other injury, developed a surgical lesion of the kidney. Of the sixteen animals which, in addition to the inoculation, received an injury to one kidney, five showed no lesion, or only hyperemia and parenchymatous degeneration. Two of these animals died within twenty-four hours of acute septic intoxication. Of the remaining eleven, all developed surgical lesions of the kidney. In eight the lesions were unilateral, and limited to the injured kidney. In three the lesions were bilateral. In one of the bilateral cases the lesions were practically equal in extent and in severity. In the other two the lesions in the uninjured kidney were mild in character, and the animals undoubtedly would have recovered under favorable conditions.

Following the second series, the report concludes:

These cases illustrate the fact that anemia and passive hyperemia so lower the resistance of the organ to a blood infection as to result in definite surgical lesions. In connection with this subject, it is interesting to recall the experiments of Lucas and Burton-Opitz, who demonstrated that under conditions of increased pressure in the renal pelvis and ureter, the renal circulation was greatly diminished, for it explains the marked susceptibility to infection in cases of hydronephrosis.

In reviewing the microscopical study of the lesions produced in these experiments, definite lesions, when present, were found identical with those found in our clinical hematogenous infections. In most instances they were found to be due to a plugging of the smaller arteries and capillary vessels with groups of organisms. These minute emboli are later surrounded by an encircling zone of round cell infiltration. Where the larger trunks are thus involved, triangular infarcts are present; where the capillaries only are involved, minute abscesses are seen throughout the cortex and beneath the capsule. If the process is allowed to go on, the bacterial emboli are rarely recognized; only areas of necrosis and purulent infiltration are found. At a still later stage many of these collections of pus coalesce, forming larger parenchymatous abscesses, which may rupture through the capsule, giving rise to a perinephritis, or into the pelvis, giving the typical picture of pyelonephritis. In some of the cases the condition has been described as an acute, purulent, interstitial nephritis. In my opinion, all of these appearances are but different stages of the same process.

SYMPTOMATOLOGY.

In discussing the clinical aspects of acute renal infection, it must be borne in mind that the ordinary

clinical types of surgical kidney, described in the textbooks as pyelitis, pyelonephritis, pyonephrosis, renal abscess, or perinephritic cellulitis, are in reality only the terminal lesions of a pathological process, and that they may result alike from an ascending or from a blood infection.

Of the hemic infections we recognize three types. The first and gravest of these, the hyperacute or fulminating, fortunately rare, is so virulent that it proves fatal in a large number of instances long before any definite renal symptoms have time to develop. In this type the clinical picture is often one of an acute general infectious disease, in which the local manifestations are so slight and so generally overshadowed by the symptoms of general toxemia, that they are frequently overlooked unless a more than ordinarily careful physical examination is made.

There is also a type somewhat milder than the one just mentioned, but still associated with a grave prognosis, not on account of its own initial virulence, but for the reason that if unrecognized and untreated it progresses insidiously to the development of one or more of the classical terminal lesions. This type often is recognized only after complete destruction of one kidney and serious interference with functional activity of the other through toxic degenerative changes.

There is still a milder type, which almost invariably ends in spontaneous recovery without serious damage to the renal parenchyma, and which is of interest to the surgeon chiefly for the reason that it furnishes a rational explanation of the so called "idiopathic pyelitis" and also for the reason that it accounts for certain ephemeral rises of temperature observed after surgical operations, or during convalescence from some infectious process.

These three types, the fulminating, the intermediary, and the mild, can best be described by giving the clinical histories of typical examples which have come under my personal care and observation.

THE FULMINATING TYPE.

CASE I. A woman, aged thirty-one years, was admitted to the Roosevelt Hospital in a condition of profound septic intoxication. She had had occasional attacks of abdominal pain of short duration for the past six months. Eleven days before admission she experienced severe pain in the right side of the abdomen and flank, extending upward to the chest; that was accompanied by chills, high fever, delirium, and great prostration. At the time of her admission to the hospital her temperature was 106°F ; pulse rapid and weak; leucocytes, 35,000. On palpation the only signs that could be elicited were tenderness and muscular rigidity in the right kidney region.* The urine contained albumin and a few pus cells. As her condition was extremely critical she was immediately prepared for operation. On exposing the right kidney, there was found a small focus of pus in the fatty capsule near the kidney cortex. The condition of the patient would not admit of further exploration, and she was saved from death on the table only by an intravenous infusion of salt solution. The temperature rapidly rose to 108°F ., and she died in a few hours.

Autopsy revealed limited suppuration and general edema of the perirenal fat; a large, deeply congested, and edematous right kidney, which on its cut surface presented literally thousands of minute septic infarcts and milium abscesses. No other septic focus could be found in the body. The left kidney and other organs gave evidences of advanced parenchymatous degeneration. Cultures from the right kidney and blood showed *Staphylococcus pyogenes* aureus.

This case illustrates the course of the disease when uninfluenced by treatment, for the brief five minute anesthesia and the opening of a small perirenal focus, leaving the kidney lesion untouched, could not by any possibility be regarded as rational surgical treatment.

The following case is one of a series of four treated by nephrotomy and drainage:

CASE II. The patient was a man, aged twenty-one years, who, at first, complained of general pain and fever. The symptoms temporarily subsided, but three weeks later the pain occurred over the right kidney region, and was accompanied by a rapidly rising temperature and other symptoms of progressive sepsis. On examination there were tenderness and muscular rigidity in the right flank. The urine was albuminous, contained some pus, a few red cells, and casts. Urine from the right kidney was scanty, highly albuminous, contained many red cells, and a few white cells; that from the left practically normal. The temperature, 104.4°F ; leucocytes, 20,000. No evidence of other septic foci could be found. The right kidney was exposed by lumbar incision, and freely opened by a cortical cut. The entire parenchyma was studded with minute abscesses. Drains were inserted, and the wound was partly closed. There was marked improvement in the symptoms, which continued for several days, but this improvement was succeeded by a gradual return of the septic manifestations, with scanty albuminous urine, delirium, and death.

On autopsy the right kidney was found to be completely destroyed by numerous abscesses. The left kidney, spleen, and other organs showed the presence of very recent septic infarcts, which had not broken down. Cultures demonstrated *Streptococcus pyogenes*.

In this case the lesion was evidently unilateral at the time of the first operation, and, had the kidney been removed at that time, recovery would probably have occurred.

The following cases, also of the fulminating type, are selected from a series of ten, under the care of the writer, which were treated by early nephrectomy.

CASE III. A woman, aged twenty-two years, experienced a severe pain in the epigastrium and right side of the abdomen, with vomiting and high fever. She was sent to the Roosevelt Hospital with a diagnosis of acute appendicitis. On examination the appendix region was free from evidence of inflammation. There was, however, pain and muscular rigidity in the right hypochondriac region, with tender points over the gallbladder and costovertebral angle; temperature, 104.3°F ; pulse, 120; leucocytes, 18,000. Cystoscopic examination was negative; urine from the right kidney scanty and slightly albuminous, few pus and blood cells; that from the left kidney was abundant and apparently normal. Widal negative; no plasmodia; no tubercle bacilli in the urine. The diagnosis rested between an acute infection of the gallbladder or kidney. Small anterior incision; gallbladder and liver found to be normal, but the right kidney seemed to be enlarged. Anterior incision united, and the kidney exposed by lumbar route. The perirenal fatty tissue was edematous; the kidney enlarged, highly congested, and the seat of innumerable small infarcts. Nephrectomy performed. After operation the temperature fell from 105° to 99°F . within twelve hours, and thereafter remained practically normal. She made a satisfactory convalescence. Microscopic examination of the specimen showed it to be filled with minute embolic abscesses. Culture report unrecorded.

One year later this patient married and became pregnant. I had an opportunity of examining her urine before and after her confinement. It was normal in every respect. Her confinement was normal, and she presented the picture of robust health two months later.

CASE IV. In January, 1912, I saw a young married woman at the Bronxville Hospital, suffering from high fever, pain in the right half of the abdomen, and progressive prostration. These symptoms had been preceded by an attack of tonsillitis, which had apparently subsided.

Following this attack there was a chill and a sudden rise of temperature to 104° F., with pain in the right flank and appendix region. A remission in the symptoms occurred for two days, but was followed by a second seizure more severe than the first, with rapidly advancing signs of septic intoxication. The temperature ranged between 103° and 105° F., pulse 100 to 120. Urine scanty and highly colored, and showed on examination a trace of albumin; some red and white blood cells. Muscular rigidity and tenderness over appendix and gallbladder regions with more acute tenderness to pressure over the costovertebral angle. Blood examination revealed a high polynuclear leucocytosis. Cystoscopic examination with catheterization of the ureters showed urine from right kidney to be scanty, highly albuminous, and to contain many red cells and leucocytes; that from the left kidney more abundant, and a small percentage of albumin, few red and white cells. The kidney was exposed by lumbar incision; perirenal fat edematous, kidney swollen, highly congested, and presented on its surface three large and innumerable small raised areas of a deep purple color. Nephrectomy followed by layer suture of the wound with one small cigarette drain. There was marked improvement in the patient's condition almost immediately after the operation. The temperature quickly fell to the normal, the wound healed primarily, all stitches were removed on the tenth day, and she left the hospital eight days later.

On bisecting the kidney, there were two large triangular infarcts and numerous small areas of necrosis, but no pus. Cultures gave a pure growth of colon bacillus.

Another patient operated on at the Roosevelt Hospital during the same month by my assistant, Doctor Russell, presented a similar clinical history:

CASE V. The patient was a man, aged twenty-eight years. Without history of previous urinary symptoms, he suddenly experienced a chill, followed by a rise of temperature to 104° F., with pain in the right flank. Following this there was a short remission, when he was seized by another attack of right lumbar pain, with a second rise of temperature to 105° F. There were anorexia, slight nausea, and general evidences of severe toxemia. Cystoscopic examination revealed a normal bladder mucous membrane. Catheterization of the ureters resulted in a scanty flow of urine from the right side, which contained albumin, blood, and many pus cells; urine from the left side normal in appearance and reactions. As the toxemia increased rapidly, the kidney was exposed under general anesthesia. The fatty capsule was edematous, the kidney enlarged and highly congested. The surface was covered by a number of deep red elevated areas, and one large central discolored area extending from the pelvis to the cortex. The kidney was removed with considerable difficulty, owing to the presence of a large aberrant artery to the upper pole. During the operation the pelvis, which was considerably dilated, was ruptured, and a large amount of purulent urine escaped. On exposing the lower pole a second aberrant vessel was found, passing from the aorta to the inferior extremity of the kidney, which compressed the ureter, accounting for the accumulation in the pelvis. The symptoms subsided immediately after the operation, and the patient made a satisfactory recovery.

In this case we evidently had to do with a moderate hydronephrosis caused by the pressure of the aberrant vessel on the ureter. This diminished the resistance of the kidney to such an extent that the presence of a moderate bacteriemia resulted in an acute infection, almost destroying the organ. Unfortunately the result of the culture in this case was not recorded. On cut section this kidney also presented numerous large and small areas of necrosis, which destroyed the greater part of its parenchyma.

These cases will serve to illustrate the various phases of the hyperacute or fulminating type of unilateral infections of the kidney. From a careful clinical study of perhaps eighteen or twenty ex-

amples of this severe type, I may briefly summarize the symptomatology as follows:

The disease may or may not be ushered in by a chill. When present it generally indicates a severe type of infection. The initial rise of temperature is high, generally 103° or 105° F., pulse frequently 120 or above. The toxemia is marked from the first, and, with the high fever, suggests often an acute grippe, lobar pneumonia, or one of the exanthemata. Then follows a more or less vague pain in the abdomen, or flank, corresponding to the side of the lesion. Tenderness and muscular rigidity over the region of the appendix or gallbladder, lead often to error in believing one of these organs to be the seat of disease. As the urinary secretion from the infected kidney is greatly diminished, and is largely diluted by the abundant secretion from the unaffected organ, the mixed urine, when passed or drawn from the bladder, is often quite normal in appearance, and the slight trace of albumin, blood, and pus is often overlooked unless a more than ordinarily careful examination is made. The one pathognomonic sign present in all cases is a marked unilateral costovertebral tenderness.

I now desire to call attention to the second or intermediary type, which constitutes by far the largest class. These cases, like the preceding group, often simulate in their early symptomatology, appendicitis, cholecystitis, or abscesses of the liver. If unrecognized and unrelieved by appropriate treatment they go on to the formation of the more definite and more easily recognized terminal lesions, as renal abscess, perinephritic abscess, pyelonephritis, or pyonephrosis. The lesions in these cases, while the same in general character as in the severe type, are fewer and more scattered, and the amount of renal tissue involved is less. Early stripping of the capsule from the organ when the lesions are small, or combined with the opening and draining of cortical abscesses or areas of necrosis when present, constitutes the best treatment, and in the great majority of instances will save the kidney. In certain instances, where the treatment has been delayed too long, the suppurative process continues and a secondary nephrectomy may be necessary. The following case may serve as an example:

CASE VI. A woman, aged twenty-six years, complained of right sided abdominal pain, with nausea, headache, fever, and general prostration. Ten days later she was admitted to the Roosevelt Hospital; temperature, 102° F.; pulse, 120; leucocytes, 19,000, of which 81 per cent. were polynuclears. The following day the temperature rose to 104° F.; 82 per cent. polynuclears on differential count. The patient was then cystoscoped. The examination of the bladder was negative; ureters were catheterized, and from the right there was a scanty flow of urine, containing albumin, a few pus cells, and blood; from the left more abundant flow, a few red cells, practically no pus. Physical examination revealed tenderness in the right costovertebral angle. The kidney was not palpated. Left side free from tenderness. Operation, performed by lumbar incision, revealed edema of the perirenal fat. The kidney was highly congested and presented six distinct cortical areas of induration. Each of these was opened and packed with separate strips of gauze tape, which were allowed to protrude through the partly closed parietal wound. Of the six lesions, only one contained pus; the others, necrotic tissue. The renal pelvis was opened; the mucous membrane appeared normal. Cultures made from the pus showed *Bacillus coli communis*. The patient made a tardy but complete recovery.

Regarding the third group, or mildest type of the disease, it may be stated that it is of interest to surgeons chiefly on account of the fact that in its symptomatology, when on the right side, it often closely simulates subacute appendicitis, as the following case will illustrate:

CASE VII. A young lady, aged twenty-five years, experienced an attack of right sided abdominal pain, with fever, vomiting, tenderness, and muscular rigidity over the right lower quadrant. These symptoms had been preceded by a subacute attack of follicular tonsillitis. Her attending physician regarded the case as one of appendicitis, and asked me to see her in consultation, with a view to operation. At the time of my visit the temperature was 101° F., pulse 110. There was a slight tenderness over McBurney's point, which extended upward nearly to the costal border. The muscles were moderately rigid. There was marked tenderness in the costovertebral angle. As no urinary analysis had been made, I declined to operate upon her, on the ground that, in my opinion, the lesion was a unilateral hematogenous renal infection. I ordered an examination of the urine, and predicted that a trace of albumin would be found, a few red cells, and pus, if the specimen was precipitated by the centrifuge. The analysis proved this prediction to be correct. The patient made a satisfactory recovery without operative treatment.

This mild type of disease is also of occasional interest in that it accounts for certain irregular periods of temperature occurring during convalescence from some surgical condition or infectious disease. In these mild cases pain is not often a prominent symptom and may be absent, the only sign being fever and a unilateral costovertebral tenderness to pressure. These cases when recognized are generally diagnosed as idiopathic pyelitis.

The writer may say in passing that he has never been able to produce in animals a hematogenous pyelitis, and has never seen a human specimen illustrating this type of disease. He firmly believes all of these cases, when not of ascending origin, to be mild cases of hemic infection of the kidney parenchyma in which the mucous membrane of the pelvis may or may not take part.

TREATMENT.

In the first group, or fulminating type of the disease, early nephrectomy offers the only chance of life to the patient. To temporize, to procrastinate, or to adopt any other method of treatment, is but to invite disaster. My reasons for this positive statement are the following: I have personally observed sixteen patients with this severe type of unilateral infection. Of these, two were untreated; both died within twelve days. Four were treated by nephrotomy and drainage. All died shortly after operation. Ten were treated by early nephrectomy. All recovered.

In the second group, or intermediary type, early decapsulation will almost always abort the process and save the kidney from the development of those destructive lesions which would otherwise follow; but in these cases the success of the treatment depends upon early recognition and prompt operation. This relieves the acute hyperemia, particularly in the cortical zone in which the lesions are largely situated, and favors the early inauguration of the processes of repair.

The writer has operated in perhaps eighteen or twenty cases of this type, and while there was no postoperative death in the series, on one occasion he was obliged to perform a secondary nephrectomy for advancing sepsis; in another, in which the func-

tion never returned, he performed nephrectomy for persistent renal neuralgia; and in at least one other case a persistent pyelonephritis has resulted. The end results, however, in most instances have been satisfactory.

Regarding the third, or mildest type of the disease, all that is necessary in regard to treatment may be summed up in the three words, rest, water, and hexamethylenamine.

CONCLUSIONS.

From a study of the experimental data here recorded, the results obtained by other investigators, and the accumulated clinical experience of the past two decades, we may conclude, first, that during the progress of any acute infectious disease a certain number of microorganisms find their way into the blood current, and that many of these organisms are excreted through the kidneys. If the number of these organisms is comparatively small, if their virulence is low, and if the kidneys are in a healthy condition, the transit of the organisms through the renal apparatus gives rise to no demonstrable lesion. If, on the other hand, the number of organisms is large, if their virulence is high, or if one or both kidneys are diseased, lesions are produced which have been described above, and which may at the outset produce an overwhelming and fatal toxemia, or may proceed more slowly to the development of any of the classical types of renal infection or suppuration; second, that while the disease may be bilateral, in a large number of instances it is unilateral, and that its unilateral character is due to the fact that the affected kidney has lost to some extent its normal resistance to infection by trauma, abnormal mobility, previous disease, calculus irritation, anemia, passive hyperemia, complete, incomplete, or intermittent hydronephrosis; third, that the presence in the body of a kidney damaged by trauma or disease to such an extent as to lower its normal resistance to infection is a distinct menace to the individual, in that it possesses a potential susceptibility to even the mildest forms of blood infection; fourth, that while I have been able to produce these lesions in animals by *Bacillus coli*, *Streptococcus pyogenes*, *Staphylococcus pyogenes aureus*, *Bacillus typhosus*, the pneumococcus, and the pyocyaneus, in clinical cases I have only been able to isolate the first four of these organisms. It may be added, however, that in the number of clinical cases the results of my bacterial investigations have been negative, notably in one instance in which the disease was known to be sequel of scarlet fever.

From my experimental studies I have been impressed with the great difficulty in producing in animals an ascending nephritis, which is in marked contrast to the ease with which it is possible to induce a hematogenous infection. This would seem to corroborate my impression, derived from clinical observation, that hematogenous infection was responsible for the greater number of cases of renal sepsis, and would tend to establish the fact to which Israel and others have already called attention, that even in septic conditions of the lower urinary passages the concomitant renal lesion may be of hematogenous origin.

16 EAST SIXTY-FOURTH STREET.

ARSENIC POISONING.

Case Reports from China.

BY ALFRED C. REED, M. D.,
Changsha, China.

Suicide by arsenic is comparatively common in Hunan, especially among women. The impelling causes are similar to those in the west, aggravated by conditions of Chinese home and social life.

CASE I. A Chinese girl, aged eighteen years, was admitted to the medical service of the Yale Hospital, September 3, 1914, and discharged much improved, November 30, 1914. Her family history gave no evidence of tuberculosis, venereal, or nervous disease. Her personal history was negative. Menstruation was established at fourteen years, she was married at sixteen, but had never been pregnant. One month before admission the patient attempted suicide by swallowing a large amount of crude arsenic, exact amount not known. This was followed by severe vomiting, with extreme abdominal pain and profuse diarrhea. She drank a quantity of cold water as a therapeutic measure and to this ascribed her continued illness. Menstruation began on the same day. At the time of entering the hospital her complaints were inability to walk and nearly constant severe pain and twitching of all four extremities.

Physical examination showed a Chinese girl rather below the average stature. General nutrition and development were good. The face, especially the forehead, was covered with a blotchy acneiform eruption, which had appeared in successive crops and left abundant scarring. Many of these lesions were pustular. This eruption was confined to the face. The tongue was markedly tremulous and the teeth very dirty and in poor condition. The pharynx was congested and the tonsils were enlarged and ulcerated. General adenopathy was present. The organs of the thorax and abdomen were apparently normal. The extremities were the seat of general tenderness along the course of the nerve trunks, especially marked in the forearms and legs. There was slight but distinct atrophy of the palmar and interosseous muscles of both hands. The fingers showed a slow jerking tremor, particularly when widespread. Considerable wasting was evident throughout the upper extremities and shoulder girdles. The knee jerks were absent and the pupillary reflexes normal. The patient complained bitterly of severe and constant pain referred to the long bones. Anesthesia and numbness, often somewhat transitory, were noted on both hands and feet, with occasional irregular pricking and tingling sensations.

The psychical condition was good and the patient lost all desire for suicide in the experiences following her attempt. Articulation and palatal action were normal. There was no complete peripheral paralysis. The patient could move her limbs, but could not fully extend either upper or lower extremities because of the pain, nor had she the strength to stand upright. Jerking and twitching of hands and head were noticeable. As the pain grew less under treatment, the anesthesia and numbness persisted, and at times the paresthesia seemed more pronounced.

Recurring crops of rashes were noted during residence in the hospital. These assumed two general types. The first type consisted of an acneiform eruption on the face and forehead, coming in irregular crops, five to eight days apart. They were apparently more severe before hospital admission and successive crops were milder. An angry dull red blotchy scarring followed each crop. This eruption disappeared during the last few weeks the patient was in the hospital. The second type of eruption consisted of maculorhythematous scaling patches of irregular size and shape, and varying nonsymmetrical distribution. The chest, abdomen, and small of the back were the common sites. The patches were excessively itchy, and disappeared with pressure to return promptly with its removal, and were dry and at no time secreting. There was no sensation of burning. These patches appeared and disappeared without reference to treatment, and were succeeded by other patches. Occasionally the lesions were symmetrical, for instance on the buttocks, but in this case a third patch soon appeared on one shoulder. Each lesion started with a small irregular area of erythema, increasing sometimes to the size of the palm, with a slightly pink and irregularly

maculopapular advancing border. The urine, stools, respiration, temperature, and pulse were normal.

The treatment of this case consisted of passive and active motion, with massage, forced feeding, free elimination, and antipruritic applications to the skin. A combination of opium, hyoscyamus, and capsicum was found most useful for the pain. Salicylic acid in various forms, alkalies, chloral, bromides, and the coaltar preparations were without influence. The patient left the hospital after three months with marked improvement in all symptoms. Muscular control was improving and the wasting was less evident. New finger nails were appearing with definite advancing ridges. The prognosis seemed good for complete recovery.

The interesting features of this case are the chronic poisoning following within a few weeks after a single massive dose of arsenic, and manifested by multiple neuritis and skin eruptions. The case is entirely typical, but unusually clear cut and quite without complications.

CASE II. Chinese man, aged forty-eight years, a merchant, admitted to the medical service, October 16, 1912, and discharged much improved, December 1, 1912. No personal or family medical history was obtainable. The patient, in company with two friends, was taking supper six weeks before admission, when all three were suddenly attacked by severe vomiting and diarrhea, with no pain but considerable elevation of temperature. One of the three died within twelve hours. The other two including the patient, recovered from the acute illness after three days, but for nearly six weeks suffered from general numbness, paresthesia, and partial paralysis of the extremities.

The complaints on admission were impaired vision, moderate deafness, and partial paralysis, particularly of the lower extremities. The senses of smell and taste were normal. Physical examination showed no disturbance of the viscera. There was marked wasting of the palmar muscles of both hands and of the calves. Considerable pain was elicited on motion of the large joints and deep palpation of the posterior tibial nerves. Foot drop was noticeable. Knee jerks were absent. The skin was in general hyperesthetic. The urine, stools, temperature, pulse, and respiration were normal.

The presence of arsenic in the food eaten by the three friends is inferred from the clinical histories, and from the fact that arsenic is a commonly used poison among the Chinese and rather easy to obtain. The particular features of this case were the absence of skin lesions, the involvement of the second and eighth nerves, and the multiple neuritis in addition.

YALE HOSPITAL.

SOLID FIBROID TUMOR OF THE OVARY.*

BY JOSEPH TABOR JOHNSON, M. D.,
Washington, D. C.

A partial examination of recent gynecological textbooks reveals an experience similar to my own in regard to this rarity of solid tumors of the ovary; also that they are usually unilateral; that they occur in the young and aged much more frequently than in middle life; that their growth is slow; that they are more subject to malignant and other forms of degeneration than are fibroid tumors of the uterus; that the chief symptoms are pain from pressure and ascites; that they are to be differentiated chiefly

*Read before the Southern Surgical and Gynecological Association, December, 1914.

from small uterine fibroids with elongated pedicles and degenerated solid pelvic tumors with ascites.

CASE. Mrs. F., white, aged sixty-seven years, mother of several children, had been troubled with pelvic pains for several years. About a year ago the bowels became so obstructed as to require strong purgatives and enemata to secure an evacuation. She rapidly lost flesh and strength, and for six months previous to the time I saw her, she was compelled to remain in or upon the bed, partly because of weakness and partly on account of the increased pain from pressure upon the bladder and rectum induced by the erect position. She had eaten no solid food for seven or eight months, hoping to thereby lessen the pains of indigestion, especially the constantly increasing agony of defecation. She was a great sufferer from flatulency and wind colic. She was permitted to acquire the opium habit to allay her pains. Her condition appeared to many to be hopeless, and the old lady was wishing and praying that she might soon die and thus end her misery.

Doctor Pyles made a rectal examination in June last, and discovered a hard tumor filling the pelvic cavity and thought it might possibly be removed. Doctor Bayne saw the case with him soon after, and opposed an operation, first on the ground of apparent malignancy and, secondly, because he did not think she was strong enough to survive the ordeal.

The patient some weeks later demanded that something be done to relieve her, and declared not only her willingness, but her anxiety to run any risk which presented a ghost of a chance of success. I was invited by Doctor Pyles to see her early in December, 1901, and made a diagnosis of impacted and adherent uterine fibroid. In view of all the circumstances, it appeared to be a most unpromising case, but as the patient was certain to die as she was, and was pleading for an operation, I agreed to do what I could toward ridding her of her burden, making no promises whatever, only telling her there was a very slim chance that she might survive. She was brought to my hospital in an ambulance on December 19th, carried in on a stretcher, and operated on the same week. I feared if the operation proved difficult or long that she would die on the table and began the incision in the most exaggerated Trendelenburg position; indeed, she was nearly standing on her head.

The tumor, much to my surprise, proved to be a solid fibroid of the right ovary and practically free from adhesions, only imprisoned below the brim of the pelvis. It was easily and quickly removed, the entire operation lasting less than twenty minutes. The woman has made a good recovery, is eating a generous mixed diet, and is nearly free from the morphine habit also. She walked out to her carriage and went home on January 31st.

This is the first perfectly solid tumor of the ovary I have ever seen in about 4,000 of my own abdominal sections and nearly another 1,000 performed by other surgeons in this and other countries. I regret that no microscopical examination was made. The tumor was cut open after removal and found to be absolutely solid, white inside, and weighed four pounds and was recorded as a fibroid tumor of the right ovary. Goodell and a few other writers mention them as occurring once in about 1,000 cases.

Peterson, in July, 1902, in the most elaborate paper I have seen on this subject, collected eighty-four cases of solid tumors of the ovary. His researches led him to believe that these tumors were not so rare as had been formerly taught, and that they occasionally attained great size. Kelly and Noble state they occur in two per cent. of ovarian tumors. These tumors should be removed as a whole on account of the danger of infection from malignant degeneration.

CHERRYDALE, VA.

A GALLSTONE TRAY.

An Arrangement for Preserving Gallstones, Kidney and Ureteral Stones.

BY AUGUST SCHACHNER, M.D., F.A.C.S.,
Louisville, Ky.

The preservation of small pathological specimens, such as gallstones, kidney and ureteral stones has, we believe, always been more or less of a problem to the surgeon as well as the internist. The difficulty of preventing accidents, such as upsetting or breaking the container, which would entail spilling of the contents and their inevitable admixture with more or less loss of the identity of the specimens, seems to be solved by my arrangement, which not only en-

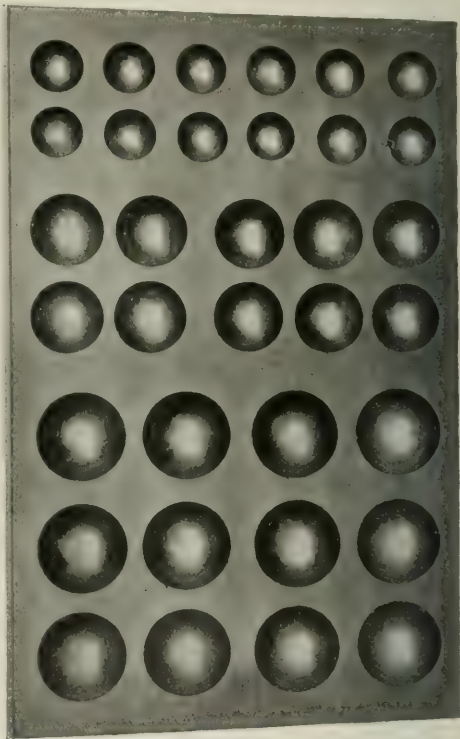


FIG. 1.—The tray or unit as it appears unutilized.

ables the collector securely to preserve specimens, but likewise permits their classification, examination, and exhibition with the greatest ease and safety. The device, although it consists of a number of blocks, has the appearance of one large block containing numerous tills or concavities of three different sizes.

Six blocks enter into its construction. These are glued together and surrounded by a frame a quarter of an inch in thickness. All of these parts are so joined as to give it the appearance of one block.

It seems needless to say that hard and well seasoned wood should be employed. When finished it should be shellacked and not varnished. Each concavity is supplied with its number, which corresponds with the number of the case in the card index or the history chart. Thus the specimens are identified, and with the aid of the text in the card index their descriptive and special features are supplied. The tray is covered with a sheet of celluloid of fair thickness.

This sheet of celluloid is held in place by slender tacks with large brass heads. These are at first

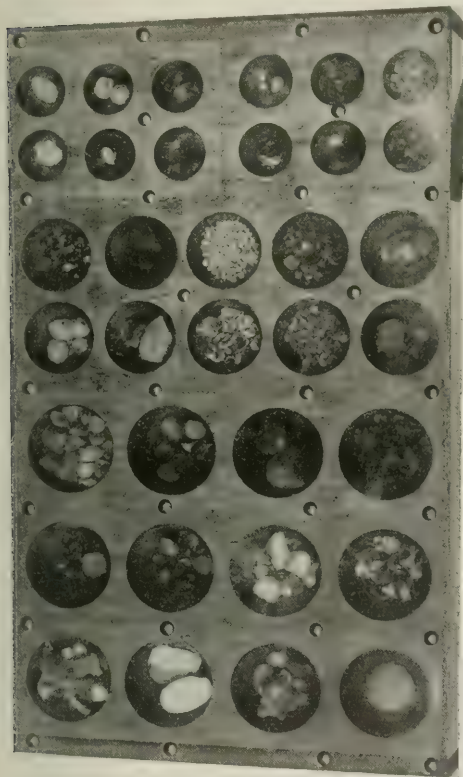


FIG. 2.—The tray or unit as it appears filled. The numbers on the tills or receivers are not shown in the cut.

placed only on one side, four in number, and driven near the edge. This enables one to raise the sheet as one would the lid of a box, giving easy access at the beginning to all the tills or concavities.

When one row beginning at the side is full, a second row of tacks is driven, which correspondingly limits the raising of the celluloid, and protects the first row of tills. As the tills are being loaded, more tacks are driven, thus securing against accidents the increase in number of loaded tills or concavities, until the capacity of the tray or unit is exhausted.

When filled, the tray represents one unit in the arrangement. These units can be arranged in a stand or frame not unlike a set of drawers or a sectional bookcase.

Properly labeled, the desired unit can be drawn out giving easy access in the shortest time to any portion of a large selection of specimens or the entire collection, and at the same time occupying the smallest amount of space. By the addition of units as they are needed, the arrangement acquires an elasticity that enables it to expand in conformity with the needs of the smallest or largest collectors. We are inclined to believe that the absence of a suitable arrangement for storing such specimens is responsible for the loss of many valuable ones, and possibly the adoption of this arrangement will lead to the conservation of much important material. It has been used by me for several years, and has satisfactorily answered all the demands that time and experience have made upon it.

The dimensions of the tray are as follows: Sixteen and one half inches long; ten and one half inches



FIG. 3.—The frame or stand holding four units with space for two other units to be added in the future.

wide; two inches thick. The largest set of tills or receivers are twelve in number, each having an opening, two inches in diameter and one inch in depth. These tills are represented in the unit by two blocks arranged side by side.

The medium set of tills are ten in number, each having an opening of one and one half inch in diameter and three quarters of an inch in depth. These are represented in the unit by two blocks, unequal in size, arranged end to end, one having four, and the other six receivers.

The smallest set of tills or receivers are twelve in number, each having an opening of one and one eighth inch in diameter and five eighths of an inch in depth. These are represented in the unit by two blocks placed end to end, each having six tills or receivers.

844 SOUTH FOURTH AVENUE.

ABDOMINAL SYMPTOMS IN PLEURISY AND PNEUMONIA.*

By JOHN DORNING, M. D.,
New York.

The diagnosis of pleurisy or pneumonia is, ordinarily, a comparatively easy matter. Not infrequently, however, particularly in children, the early manifestations of a pleurisy or a pneumonia may be very indefinite, or they may so closely resemble those of appendicitis, or some other acute abdominal lesion, that sometimes it may be difficult, if not impossible, to avoid an error in diagnosis during the first few days of the disease.

My only excuse for adding to the somewhat extensive literature of this subject, is to emphasize the importance of making careful or repeated examinations of the chest in these more or less perplexing cases in order to escape, if possible, the unpleasant consequences of injudicious surgical haste on the one hand, or the disaster likely to follow the delay of a necessary operation, through overcautiousness, on the other.

There are on record a number of cases of pneumonia in which an operation was done on the erroneous diagnosis of appendicitis. Most of us have seen cases of supposed ether pneumonia, detected after operation for an alleged mild catarrhal appendicitis, in which we were not fully convinced that the pulmonary inflammation was not the primary, if not the sole trouble. Nevertheless, a pneumonia may, though rarely, occur coincidentally with an appendicitis, both being caused by the same pneumococcus infection, or one may follow the other.

During the past three years, I have seen sixteen cases of pneumonia and pleurisy in which there were abdominal symptoms, such as vomiting, pain, tenderness, muscular rigidity, and tympanitic distention, so pronounced as to call for more than ordinary care and sometimes some delay in reaching a correct diagnosis. In one case an operation had been performed, the history of which, though previously published, is again here briefly presented:

CASE I. F. H., female, aged four years, on February 7, 1912, was taken with severe cramps in the lower right side of the abdomen. The medical attendant diagnosed acute appendicitis and had her immediately admitted to the surgical division of St. Francis Hospital for operation. The record on admission noted a very sick child with a rigid and generally painful abdomen; too painfully tender to permit more than a superficial examination. Temperature, 103° F.; respiration, 40; pulse, 112. No cough. Family history negative. Child had whooping cough when a year old; measles in her second year; no other illness.

Next morning, condition unchanged. No cough. Temperature, 103° F.; respiration, 40; pulse, 118. Blood examination showed leucocytes, 16,200; polymorphs, eighty per cent.; small lymphocytes, fifteen per cent.; large lymphocytes, three per cent.; eosinophiles, two per cent. An exploratory laparotomy was performed, but no pathological condition was found in the abdomen. The appendix was not removed. The same evening the temperature was 104° F.; pulse, 130, and respiration, 40. On the day after the operation the condition remained the same. No cough. A few moist rales were heard over both lungs, thought to be due to the ether administered the day previous. A blood culture was made with negative results.

On the third day, the patient was transferred to the medical division. There it was recorded: Patient very sick, nervous and irritable; lips dry, tongue coated, breath offensive; tonsils enlarged; no exudate. Complained of

pain on swallowing. No cough. Moist rales in chest had disappeared. Small area of dullness at base of left chest posteriorly. An empyema was suspected and an exploring needle was introduced without obtaining pus.

On the sixth day, I was asked to examine the patient. Then the temperature was 104° F., respiration, 40, and pulse 140. Respiration thoracic; no expiratory grunt; no cough. Palpation of the abdomen revealed only slight resistance, limited to the right side, and scarcely any tenderness. Over the lower third of the left chest posteriorly there was a moderate degree of dullness and a not well defined bronchial respiration and distant bronchophony. Blood was taken for a culture. On the seventh day, physical signs in the chest were well marked. Bronchial breathing in left chest very pronounced both anteriorly and posteriorly. No cough. The pathologist reported a pure and luxuriant growth of pneumococci in the culture, which yielded positive reactions to agglutination tests. On the following day there were heard beginning signs of resolution in the left lung. The fever ranged between 100° and 103° F. until the end of the fifth week, and at the end of the seventh week she was discharged cured.

Here was a case of pneumococcus septicemia in which the early symptoms were so misleading as to reasonably justify surgical interference. The next three cases are selected as being fairly illustrative of the subject under consideration. The first one barely escaped operation, the signs of consolidation appearing on the third day. In the second a pulmonary inflammation was suspected because of the marked increase in the ratio of the respiration to the pulse rate, though a friction rub, the only evident physical sign, was not perceptible until the fifth day. The third case presented no difficulty in diagnosis when admitted to the hospital, though it is more than likely that the abdominal symptoms occupied the attention of the attending physician to the exclusion of a careful search for trouble in the chest.

CASE II. D. F. K., aged three years, taken ill on April 15, 1912, with vomiting and severe pain on right side of abdomen. Seen by the family physician the same evening. Temperature, 102.6° F.; respiration, 35; pulse, 120. Diagnosis of appendicitis, and operation advised. I was called in the next morning to share the responsibility of an operation. At this time the temperature was 103° F.; respiration, 35; pulse, 126. Respiration was thoracic with an occasional catch. No expiratory grunt. Complained of abdominal pain. Abdomen distended and rigid. Right iliac region so tender and painful as to permit only superficial palpation. Right thigh flexed. Examination of chest negative. Digital examination per rectum elicited no additional pain. Advised delay of operation, the responsibility of which I had wholly to assume.

On the following day the condition remained unchanged. Leucocytes, 14,000; polymorphs, eighty-five per cent. A blood culture was later reported negative. The fourth day showed no amelioration of the abdominal symptoms and no change in the temperature, respiration, and pulse. There was occasional cough. At the base of the right lung posteriorly there was heard distant bronchophony with slight dullness. On the fifth day the abdominal symptoms had greatly subsided and the physical signs in the chest were more pronounced.

CASE III. M. W., aged six years, admitted to the hospital on April 11, 1914, with a history of having become ill on the previous day with severe pain in the stomach and vomiting. There had been no errors in her diet. Bowels constipated; no cough. Child seemed to be greatly prostrated. Temperature, 103° F.; respiration, 54; pulse, 150. Rigidity and tenderness of the whole abdominal wall, which slightly yielded on the left side to gentle pressure with the flat of the hand, but became more resistant and very painful in the right iliac region. Examination of heart and lungs negative. After a dose of castor oil and an enema had relieved the constipated bowel, the child, next day, seemed more comfortable, but the abdominal signs remained the same and examination of the chest was still negative. There was an occasional catch at the end of

*Read, by title, before the American Pediatric Society, May, 1914.

inspiration. Temperature, 101.8° F.; respiration, 46; pulse, 135. Leucocytes, 14,000.

On the following day, the fourth day of her illness, the tenderness and rigidity on the left side of the abdomen had subsided, but persisted in the right iliac region. Temperature, 102.4° F.; respiration, 38; pulse, 120. Fifth day, right sided rigidity and iliac tenderness less marked. Child complained of pain under the right scapula. Coughed a little for the first time. A distinct friction rub was heard over the posterior lower borders of both lungs and a few scattered moist rales over both sides of chest. Temperature, 102.8° F.; respiration, 46; pulse, 120. Sixth day, patient bright and lively, no complaint of pain, abdomen soft and free from tenderness. Temperature, 99° F.; respiration, 20; pulse, 90. Friction rub had disappeared. Röntgen ray showed two small shadows in the lower third of right chest.

CASE IV. C. B., aged two years, was sent into the hospital for operation after having been sick three days with a supposed appendicitis. On admission the temperature was 103° F.; respiration, 50; pulse, 120. No cough, no catch on inspiration, nor expiratory grunt. Marked pain and tenderness over the right side of the abdomen, increasing in intensity toward the base of the chest, with moderate muscular rigidity that partly yielded to firm gentle pressure with the flat of the hand. Examination of the chest revealed moderate dullness over the upper and posterior part of the right lung, with high pitched respiration and some bronchophony. The child was given a dose of castor oil. By the following afternoon the abdominal symptoms had subsided and the physical signs of pneumonia were more pronounced.

It has long been well known that pain may be a most misleading symptom for the reason that it is not always located at the seat of the disease causing it. For instance, the diagnosis of vertebral caries is sometimes delayed because of a misinterpretation of the referred epigastric pain, and disease of the hip joint is not always at once recognized on account of the complaint of pain in the knee. In some rare cases of renal calculus the pain may be felt in the opposite lumbar region, or the distressing symptoms may be located in the region of the bladder or at the head of the penis. Laennec, in alluding to the pain in pleurisy, remarks that occasionally from the beginning of the disease, we have a stitch on the right side and pleurisy on the left. Huss, in dealing with the subject, explains the pain on the opposite side by an occasional anastomosis of the right and left intercostal nerves.

The pain in pleurisy or pneumonia may be referred to almost any part of the abdominal cavity or it may be distributed over its whole area; most frequently it is limited to the right side or to the epigastric region, and when associated with considerable local tenderness and marked rigidity of the abdominal walls and an absence of noticeable respiratory symptoms, the attention may become so riveted on the painful region that only a superficial examination of the chest is made or the possibility of a pulmonary inflammation is entirely disregarded.

It is believed that an explanation of these painful abdominal symptoms may be found in an irritation, or in an actual inflammation of one or more of the lower six intercostal nerves. These intercostal nerves are distributed to the lower part of the pleura, to the diaphragm, and to the skin and muscles of the abdominal and thoracic walls. Irritation of the seventh to the ninth intercostal nerves would cause painful symptoms in the upper abdominal zone, while in involvement of the tenth and eleventh nerves there would be referred pain and muscular rigidity in the lower part of the abdomen,

producing symptoms resembling those of appendicitis.

This intimate nerve connection between the pleura, diaphragm, and structures of the thoracic and abdominal parietes seems to indicate a closely related function of these parts in connection with the respiratory movements. Hence the effort on the part of the intercostal and abdominal muscles, by their inactivity and rigidity, to restrict the movements of the chest walls and thereby lessen the pain and limit the damage to the underlying inflamed tissues.

The character of the pain is not always a reliable guide in the differential diagnosis, especially in children. The sharp, stabbing pain in the upper waist line, usually so expressive of a pleurisy, may sometimes be due to a peritoneal inflammation; and the colicky or dull aching pain typical of a peritoneal irritation may be caused by a diaphragmatic pleurisy. This was strikingly exemplified in one case in which a diagnosis of a probable perinephritic abscess was made because of a severe, continuous dull pain, exquisite tenderness, and muscular rigidity in the right upper third of the abdomen, and negative chest findings for six days. It proved to be an acute pleurisy, the pain abruptly ceasing with the effusion of fluid into the pleural cavity.

This sudden relief of pain is rather diagnostic of acute pleurisy, indicating the separation of the inflamed pleural surfaces by an exudate or an effusion. It may, however, also be observed in an acute appendicitis when a much dreaded rupture or gangrene alleviates the tension in the inflamed part.

Superficial tenderness and rigidity of the abdominal parietes becoming intensified by a light touch, but which diminishes or disappears under gentle and firm pressure with the flat of the hand, would undoubtedly point to a pleurisy or a pneumonia rather than to appendicitis. In one third of the cases, however, there was no abatement of these symptoms on pressure, hence in such an event a pulmonary involvement cannot be positively excluded. Relaxation of the rigid abdominal wall between respirations, though generally regarded as an important diagnostic sign in pneumonia, was only occasionally noted.

A rapid catching respiration accompanied by an expiratory grunt, often heard on entering the sick room, are so strongly characteristic of pleuropneumonia that the real nature of the trouble may be suspected or a correct diagnosis may even be made before the patient is examined. They may also be observed in acute pericarditis. In two cases of acute suppurative appendicitis, in which there were at no time any discernible physical signs in the chest, these symptoms, to which was added a disproportion in the ratio of the respirations to the pulse and temperature (respirations 48 and 60, pulse 128 and 114, and temperature 102.5° and 102.8° F., respectively) were so pronounced as to excite a suspicion of a complicating diaphragmatic pleurisy.

Acceleration of the respiration, out of proportion to the pulse rate and fever, would be in itself very significant of a pneumonia; but it was not the invariable rule in these cases. There was absence of cough during the first three days in eight cases; no cough until the fifth day in two; and none at all

during the whole course of the disease in two instances, in one of which there were never any perceivable chest signs, though a crisis occurred on the fifth day.

The behavior of the temperature is not always a reliable guide, for the sudden elevation and continued high range, so common a feature of pneumonia, and usually considered an important differential symptom, is often seen in acute appendicitis. We also know that some exceptional and grave cases of pneumonia or peritonitis are attended with little or no fever.

Blood examinations gave varying results, the leucocytes ranging from 10,000 to 19,000 and the polynuclears from seventy to ninety per cent. In three cases a blood culture showed a pneumococcus, in one of them before the physical signs became manifest.

Digital examination per rectum was sometimes of material assistance in eliminating appendicitis. If gentleness is used the index finger can, without much discomfort to the patient, be carried up far enough in young subjects to detect tenderness or exudate in the region of the appendix.

After the first day or two the Röntgen ray will sometimes clear up the uncertainty attending the diagnosis of a central pneumonia. In private practice, however, the Röntgen ray is perhaps not likely to be available when most desired.

After all it must rest with the attendant, after due consideration of all of the symptoms, whether it would be wiser to incur the risk of an exploratory operation in certain doubtful cases presenting urgent symptoms, than to defer too long surgical interference for a possible ruptured appendix or some other serious abdominal condition.

124 WEST EIGHTY-FIRST STREET.

AN IODINE FUMIGATOR.

Some of Its Uses.

By W. L. CAPELL, M. D.,
Omaha.

Instruments for the use of the internist are not so numerous as they are in other branches of the practice of medicine; hence, I may be pardoned for calling the profession's attention to another. The iodine fumigator is an instrument for causing iodine to fume and directing the fumes to any part of the exterior of the body or into any cavity having an external opening where, by the process of sublimation, the iodine is deposited on the part desired. The accompanying figure gives a good idea of the instrument. The body is a hollow cylinder, two and one half inches in diameter, made of copper, with an opening in the top, closed with a cork. From opposite sides project hollow copper arms. To one of these arms is attached a rubber bulb, and to the other arm a rubber hose. A glass nozzle and spirit lamp complete the instrument.

The cylinder is for the purpose of vaporizing the iodine. The rubber bulb forces the air into the cylinder, which in turn forces the fumes through the opposite arm. The rubber hose is for the double purpose of giving flexibility to the arm and attachment to the nozzle.

To operate, remove the cork and put into the cylinder a proper amount of the crystals of iodine (from one to five grains), replace the cork, take hold of the bulb, and hold the cylinder over the lamp. Gently squeeze the bulb from time to time to see if the iodine is vaporized, which will be manifest by the purple fumes flowing from the opposite arm. Care should be taken to apply as little heat as necessary. The appearance of the fumes shows that the instrument is ready for use. It can be used either with or without the nozzle.

The object of vaporizing iodine for external application is to produce that fine state of subdivision that will admit of rapid absorption. And there can surely be no finer division than that of fumes or smoke. If iodine remains long on the skin, it will set up an inflammation and prevent not only further use, but also absorption or deep penetration. If the object is disinfection, it seems that the whole skin should be brought under the influence of the

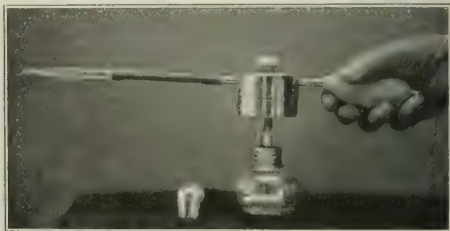


FIG.—Iodine fumigator.

drug, for the deeper recesses afford a hiding place for bacteria. Hence, deep penetration is necessary. This is accomplished with the fumes, as they are all absorbed in a few minutes.

With the instrument the fumes can be directed to any particular part, or into the cavities, either natural or artificial, that have an external opening. Thus they can be thrown into nasal cavities or into the throat, ear, urethra, or vagina; into fistulas and abscess cavities, or any diseased area of the body in which iodine is indicated, such as wounds, ulcers, infections, and skin lesions.

This method of applying iodine, especially in cavities, has many advantages. Among them is the short time required to make the application, the evenness in which the iodine is applied, the fact that the fumes reach all parts of the cavity, even smaller cavities that may open into larger ones. Uneven walls and pockets do not prevent the thorough and complete application of the iodine. The pain is reduced to a mere smarting, and lasts but a few minutes. No inflammation follows continuous use of iodine in this way. It admits of rapid absorption and perfect control of the amount used. The stain lasts but a few minutes. Convenience and cleanliness are important features of this method of applying iodine.

A question likely to present itself to the thoughtful physician is, Would not pure iodine, applied to the mucous or broken skin surface, be very painful? Experience answers in the negative if used in the form of fumes. Some parts of the mucous surface

are more sensitive than others; hence greater smarting results. For instance, the nasal mucosa is more sensitive than the throat, the throat more so than the ear; but nowhere is it great or lasting. An unexplained peculiarity of the fumes of iodine is that the more intense the inflammatory process, the less the smarting. In coryza or hay fever, for instances, smarting is less than in the normal state. In recent injuries of the integument it is greater than in the chronic. In ulcers and skin lesions it is practically nil.

It is not the province of this communication to discuss the merits of iodine; a century of continuous use renders this unnecessary. It may not be improper, however, to mention the fact that iodine, during all these years, has been largely used externally, and few other remedies have claimed more attention, both the physician and chemist attempting to rob it of its irritating properties and preserve the antiseptic and healing virtues. How successful they have been is known to every physician who has used the tincture, iodoform, aristol, or any of the many combinations in which iodine is the main ingredient. The use of the fumes of iodine is by no means new. Such good authorities as Bartholow and Senn spoke of it a quarter of a century ago, and Dr. Charles E. de M. Sajous, of Philadelphia, is also a believer in the great efficacy of iodine in its various forms.

My own experience with the fumes of iodine covers a period of six years, and the success which I have met with justifies me in now publishing the results to the profession. During that time I have treated a number of cases of diseases of nose, throat, ear, urethra, and vagina, with what success the following cases in detail will give some idea.

CASE I. Suppurative otitis. Mrs. G., aged thirty-one years, from childhood had periodically a discharge from the right ear, and for the last three years it had been almost continuous. The pinna and adjacent skin from one to two inches around it were red and inflamed. The discharge was abundant and had a bad odor.

Treatment: The meatus was mopped out with absorbent cotton and the fumes were thrown in through the nozzle until the walls were well painted and dressed with emollient ointment. This treatment was given daily for ten days, then on alternate days for twenty days, at which time, all symptoms having disappeared, she was discharged. No return, one year later.

CASE II. Nasopharyngeal catarrh. Mrs. B., aged forty-two years, had nasal catarrh for twenty years, later involving the pharynx and Eustachian tubes. The hearing was reduced one half in the right ear and almost completely lost in the left. After the application of the fumes of iodine for three months, the discharge and scab formation had ceased and the hearing in the right ear was practically normal and greatly improved in the left.

CASE III. Chronic laryngitis. Mr. M., aged fifty years, had more or less trouble with his throat for twelve years, expressed in hoarseness, hawking, and clearing the throat. Even common conversation was continued with difficulty and loud tones produced violent fits of coughing.

Treatment: As the fumes of iodine were thrown into the nasal fossa, the patient was instructed to breathe deeply, thus carrying the fumes into the larynx. This treatment was given daily for eight days, then once a week for two months, when all the symptoms had disappeared. No return, one year later.

CASE IV. Vaginitis. Mrs. L., widow, aged thirty-eight years. Vaginitis of some years standing. Leucorrhœa was so profuse that a napkin had to be worn all the time. The vaginal wall was inflamed and tender.

Treatment: A speculum was introduced into the vagina, and by rotating it all of the vaginal wall was treated. This

treatment was given daily for two weeks, then once a week for three weeks. All symptoms having disappeared, she was discharged. No return, two years afterward.

CASE V. Urethritis. Mr. O., aged twenty-seven years, contracted gonorrhea nine months previously. On examination it was found that the posterior as well as the anterior urethra was involved; there were no other complications.

Treatment: The patient was instructed to urinate, after which the urethra was filled with a two per cent. solution of cocaine. This was retained for a few minutes, and allowed to escape. Then an Otis endoscope was warmed, lubricated with glycerin, and passed into the posterior urethra, the obturator removed, and the fumes of iodine were thrown in. The endoscope was gradually withdrawn while using the fumes, thus reaching the entire wall. This was done daily for ten days, at which time all discharge had ceased. Later examinations revealed nothing.

CASE VI. Tonsillitis. A boy, aged twelve years, was attacked for the fifth time in two years with tonsillitis. By previous arrangements the fumes were used early twice a day for three days, then once a day for a week, since which time, more than a year, there has been no further trouble.

2451 SOUTH TWENTIETH STREET.

THE NATURE AND PATHOGENESIS OF EPILEPSY.

BY L. PIERCE CLARK, M. D.,
New York.

(Continued from page 522.)

CASE III. The third case is that of an unmarried man of early adult life (aged twenty-four years), whose grand mal epilepsy began at nineteen years of age. He, too, looks several years younger than his real age. The family history is bad; epilepsy, insanity, and feeble-mindedness exist in both branches of the family. The father and mother are both neurotic as are also the patient's brother and sister.

The patient was strong and robust in childhood. His mental development measured by school standards was above the average. He excelled in mathematics, but did only average work in history and literature. He was rather lazy, but had a good school record otherwise. He was persistent and practical of mind. He was always very overactive as a boy and youth. As characteristic of him it is told that he got a little music box as a birthday gift when seven years old and played it with his right hand until the arm was exhausted; he then turned the lever with the left hand until he fell asleep from exhaustion. Ordinarily he spent his energies in a desultory way, yet he was always self-reliant and very egotistical in manner and speech. He was not imaginative and was reserved in his confidences. He was vain and proud and liked "dainty" things in dress. He took discipline at a military school very well and never complained of aches and pains. Owing to his growing egotistical qualities of mind, he did not hold friends long; he wanted always to be leader. Nevertheless he craved society. He took everything, including people, at face value, consequently was often deceived. He never had a closely attached boy friend, as he always insisted upon being the only one to be considered. He was naturally cruel and liked to play Indian until his harsh play scared the other boys away from the playgrounds. He was not obedient at home and often had tantrums. He didn't take parental advice well and grew more opinionated and stubborn. His disposition later showed a change. He grew shy, rather timid, fearful, and suspicious. He also felt above his surroundings and environment. Against the father's express orders he used to make the coachman sit behind him when he drove the trap. While he adapted himself fairly quickly to new situations, he speedily grew tired and then wanted a change. He never was really confidential with anyone about his inner views. His reading was confined to light literature; current events never interested him. He was only superficially affectionate to his family. He had little sense of responsibility and was never blocked by scruples or doubts. He was very particular

regarding order and routine. He was not naturally enthusiastic, took real troubles without much show of depression, and never craved sympathy. He was always rather irritable and quick tempered. He was rather constantly ill at ease with the opposite sex, never really had a love affair, nor indulged in sentiment. He was rather gluttonous as he grew up, ate meat to great excess, and was placed on a restricted diet at fourteen years, when he weighed 166 pounds; the dietary limitations annoyed and fretted him greatly. He slept well, but often talked in his sleep. He resembled the mother and had her temperament. The father attachment became very strong to the exclusion of all else when his epilepsy developed. From ten years of age until his disease occurred he masturbated to excess—six or eight times daily. At thirteen years he impregnated a nurse maid and from that time he had regular (weekly) sexual intercourse, but the act was never really satisfying and he always masturbated several times thereafter the same day or night. During the most of his waking state his mind was sex-engrossed until the winter preceding his disorder (epilepsy) began. He then stopped masturbating, felt constrained, languid, irritable, and depressed. He still continued normal intercourse until five months before the epilepsy began, at which time he contracted a severe gonorrheal infection with joint involvement. After this painful illness, which was followed by pomaine poisoning, he stopped all sexual indulgences of any sort. He then went into business with the father; he began to feel very neurasthenic, had headaches, frightening dreams of fire, railroad wrecks, automobile collisions, attacks of robbers, etc. He felt so wretched that he attended to business very irregularly, and within two months after cessation of the sexual life he had his first grand mal attack. By the history, although indefinite, it seems that he probably had slight nocturnal petit mal attacks from the very outset of the suppression of his sexuality. His dreams now began to be entirely engrossed with being with the father; he was in his father's arms, being caressed and petted by him, and the father consulted him about the business, etc. When under treatment at a distance from the father, he became extremely depressed, wrote the father daily or telephoned to him, and spoke of him so constantly and in such a childish manner that he gradually lost touch with his friends and relatives. He was considered an egotistical and obstreperous bore. At the time, a specialist diagnosed his disorder as one of epilepsy plus an *Angst* neurosis. His convulsive attacks steadily increased, and the petit mal occurred daily. He lost all sexual desire as soon as the disease received its maximum development, two years ago. Preceding each one of the petit mal attacks he heard the father calling, saw knives thrust at him, was being run down by automobiles and railroad trains. In the attacks he calls out for the father, starts to undress, clings to the nurse, and often tries to exhibit his person. After the attacks he feels as though he has rid himself of something. In the dreams noted physicians approach him, saying that they are the greatest healers in the world. "All the world knows he is epileptic" and a certain one of the noted physicians has a certain precious medicine (either white liquid or golden) to be injected into the back, the veins, legs, or abdomen to cure him. Most frequently it is given him by the father, or under his direction, and he is made well instantly. He feels pleasantly sleepy, relieved, free from all his pains and aches, etc. In another dream he is walking along the railroad track with the father; a train threatens to run over the father, but instead jumps the track and runs over the patient, and the father gathers his dying body in his arms; the patient then suddenly awakens to find himself on the floor of his sleeping room in an attack (petit mal). In still another he dreams that he is put out of his home by his mother because of his disease, and after wandering in the cold for hours calling for the father, the latter finally hears and comes to his relief and carries him to his bed, and a real attack takes place, the bed being wet with perspiration.

A dream that often recurs is that of a man appearing with a hypodermic medication with which he promises to cure, not only his disease of epilepsy, but also the damages of sexual excesses. (The patient is sure his disease is solely due to a disordered sexuality in youth, a common though every viewpoint). But the man explains in the dream that the medicine will abolish the epilepsy and the sexual-

ity too. After consulting the father (*sic*) they both reluctantly agree to try the remedy, but the physician-magician finally decides that the patient "is not the right kind of case for the remedy after all." The patient is surprised that he is not disappointed at this, awakes in a happy mood, and is free from attacks during the day.

A thinly disguised infantile dream of the assumption of homosexuality and of the female type of physique is shown in a dream in which a machinist forcibly saws off the patient's stiff leg, which has been very obstructive to his getting on in life, and the continuance of which seems to have originated his disease. The patient is much frightened at the leg's removal, awakes from a nightmare, and is happy to find that his "body" is intact and serviceable. A dream in which he is sealed in death with the father is shown by the patient leaving home, bidding all a last goodbye. His father is to accompany him a short distance in an automobile; they go for a long journey and just as the patient is to bid the father an affectionate farewell there is a terrible explosion from a collision and both are killed. No terror is felt.

During the first three year period of his disease the patient's memory failed, he became pettishly childish, gradually ceased work, and lost interest in his friends. He then became absolutely dependent upon his nurses as soon as contact with the father was debarred. He gradually assumed many female characteristics, used powders and scents, decorated his room with photographs and pretty colored cloths and turned much of his attention to music; he craved sweets and smoked constantly. At this time a definite regime of hygienic training treatment was instituted under trained and restricted principles, and an analysis was given. It was found that the minor attack was analogous to dreams, that it had a wish striving in its content which was always an effort to return to the father's arms for petting and caressing (libidinous pleasures) and that many of the greater convulsions started in a like manner to those in which petit mal only occurred (same aura and feelings of an electric discharge in his body and legs, a something coming up in the mind, father calling, knives, assaults, and often fat men descending on him from the ceiling). So it seemed that the grand mal was really nothing less than the petit mal writ large and carried to a finality. It had a parallelism in the slight waves to episodes of emotional crises in which an individual weeps or laughs, but when the discharge is greater, it breaks down the whole mental inhibition. The latter state may then provoke the greatest bodily contortions or assaultive violence. The simple falls, however, in that the strivings for expression in the fit are really from the unconscious, and are always infantile. The muscular convulsion of the attack has caused more than one observer to note and comment upon its similarity to the infant's movements of glee or rage.

It is interesting to note the effects of analysis in this case. The patient saw the abnormality of the attachment to the father, saw the reason for all his anxious neurasthenic symptoms, and how childish his character had become in consequence. He made no real effort, however, to take a very broad view of the urging that he do more play and study to gain a proper mental development, but devoted his main attention to the minor attacks being initiated by an unconscious striving to get in contact with the father; he recognized the motive of the fit. He immediately consciously repressed all attacks for six weeks (such a period of freedom had not been seen for more than two years). As he aptly expressed it, he "sat on the lid and kept them down in the mind where they belonged." The efficacy of the method worked like a charm or bromide sedation, but his plan was effective for a time only. Like nearly all other repressive measures in the disease, it failed. Had his disorder been simply an affect epilepsy or psychogenic convulsions, more brilliant results probably might have ensued. However that may be, his psychic inhibition finally broke down and a series of grand and petit mal attacks ensued. Some eight or ten fits occurred in one week, and the patient was again reduced mentally to his former state of abject neurasthenic depression and fearful anxiety. Again he heard the father calling, knives were hurled at him, fat men threatened to fall on him, etc. In brief, the whole readjustment had been superficial in the patient's mind as he had secretly made up his mind to do no more than was necessary (a state of insincerity often encountered in epileptics). It must be added that the feeling of

nerve tension was high just before the break came and the patient masturbated twice before the "risings" in the mind finally broke free in a series of attacks. In other words, the patient had voluntarily encouraged the discharge. In two of the attacks in the series the patient made an assaultive attack on his nurse in a semiconscious state by throwing himself on the latter, who lay prone on a bed. The attack of violence was accompanied with laughter and other evidences of pleasure (lust-assault) shown by the physical contact. The patient is now on another month's free period and seems only anxious to grow up slowly in the normal manner by a much more sincere and frank principle.

The tenacious grip which the unconscious fixation on the father may have, is excellently portrayed in the episode of the father's return from a prolonged absence. During the three months of intensive analysis and training the patient had but one series of attacks, as heretofore noted. The patient had shown a remarkable change in manner and general deportment; he declared he no longer even thought of the father in his previous childish manner. One morning he received a telegram saying his father had returned. He immediately stopped work, dressed in his best suit, went about smoking to excess, and told everybody that his father had returned, that "it was the best piece of news he had had in a long time." He became irritable and faultfinding with nurses and servants who were indifferent to his "news." Later he had a telephone conversation with the father and said it was "the greatest pleasure in the world to hear his father's voice on the wire." He never spoke of or referred to the other members of the family. He then assumed an air of importance and monopolized the conversation, walked about, continually laughed at trifles, his eyes filled with tears, and he otherwise showed he was under great nervous tension (hands and voice trembled, he stammered, gesticulated, and became boyish and rather silly toward others). Altogether there seemed to be a decided inflation of the infantile makeup of the patient and he became hypomanic. He then began to resist the nurses' customary orders regarding diet, the restrictions in the use of tobacco, said he would now do as he thought best and would follow no one's orders, not even the physician's. In the evening following, he quarreled over the pool table, became jealous that his good male friend paid attention to others; still later, when candy was passed, he remarked that he would take none if he couldn't have as much as he wanted. He then went to the special friend and demanded an apology for associating with others; on not receiving it, he suddenly became humble in manner, repeated over and over again how much he, the patient, thought of this friend, etc. (a sort of childish lover make-up after a lover's quarrel). He then retired to his room, smoked constantly, sat in a state of gloomy abstraction, replied to questions in a vague, listless manner, felt depressed, and had many "psychic waves" (heard the father's voice, saw things coming toward him). He continued in this manner for several days. After having "crowded it down and out" (conscious repression) he became more reasonable and sensible and resumed his life in a natural manner as before interruptions.

Not infrequently in the dream state his ego breaks through even the depth of the father attachment—the father dies, the patient succeeds to his fortune and business, and he is heartlessly entertaining his gay companions with the father's inheritance. In such behavior his egoistic dominance and self-generated pleasures in which he creates worlds and practically makes a god of himself, show in a classic manner the crude outcroppings of the intense egotism of the epileptic.

It may be added here that very recently an unfortunate love affair apparently has been turned to good account in this case in that during the dreams, at least, the father and son have mutually excluded each other.

To summarize Case III, we have here a grand mal idiopathic epileptic whose sexuality failed to evolve into a heterosexual, but remained infantile and masturbational in character, and upon its repression in all phases it broke out in ill disguised desires to return to the father, homosexual assaults, and narcissistic autopleasurable states. The infantile homo-

sexuality took the father as the sexual object, later transferred a part of this attachment upon his physician and nurses, and thus the fits continued as substitutes for the normal output of libidinous energies. The final effort at true sublimation in this case is still in question and will be reported upon in detail later.

CASE IV is that of an unmarried man, aged twenty-four years, who had an infantile convulsion at dentition, but who grew up to be an exceptionally strong and robust boy until he developed grand mal epilepsy without apparent cause at twenty years of age. He had been a sleep walker in early youth. His grand mal attacks usually occurred at night, especially in the latter part, and were classic in character. Our patient is the third in line of birth in a family of four. There is a marked paternal hereditary taint of both insanity and epilepsy. As a boy he learned easily, acquired knowledge slowly, but had a good retentive memory. He is at present finishing his college course, taking five years to do four years' work in mechanical engineering, the extra time in finishing his college work being due to medical restrictions and not to intellectual deficiency. He stands about average in his classes. He is very backward in languages, but excels in mathematics. His powers of mental concentration, attention, and observation are good. He is very practical, excels at handling tools, has little or no imagination, and has read but one novel in his whole life. He has always been passionately fond of athletics in which he stands nearly first in all forms (college athletics). As a boy he was always overactive and never seemed to tire. He was a very timid boy, was rather constrained, kept his own counsel, and went his own way; yet he could cooperate well with other boys in games and sports. He was rather conceited at bottom, but this was usually covered by a superficial reserve. "He has always been a plain, simple, quiet minded boy" is the family's designation. He never smoked nor drank, but is very fond of sweets.

The possible value of a more careful study of the inner life of the patient was suggested as the patient was a young man of extraordinarily strong physique who rarely had wet dreams (only three in nearly two years), always stayed at home, apparently had no sexual life nor even sentimental love affairs throughout youth. Second, when (in a dream) engaged in trying to persuade the uncle that he needed no personal attendant as he was nearly if not quite well, he suddenly fell down in a fit in the uncle's presence. Obviously the fit meant something else than a continuance of his hated malady. In several months' analysis we find the dreams filled with associations with men, some in most intimate relations, and others of the effeminate type who were hated, fought with, or killed. Two wet dreams during this period occurred without feminine associations; he says, "there is a misty veil over who the sexual objects really were, but I think they were men; at least men and boys were about. Yes, they were men, old men, some younger and some older, and some very old—old enough to be my grandfather." The significance of the dream is the better understood when one learns that the patient is of the father's physical and mental type ("as like as two peas in a pod," so designated by the mother), that the father is like the grandfather, and that there is a strong line of this type for many generations. The grandfather started a large architectural business which the uncle and father continue and which our patient hopes to take up when he has finished his course in college. His hopes, fancies, and day dreams are centred in entering into closer personal relations with the uncle and father, taking the grandfather's ideals to greater accomplishments in the architectural world. A characteristic dream of this *Allmacht* desire is shown when the patient is on a small armored (?) tug on the ocean; the whole American navy slowly moves by in battle, is destroyed, and next comes the army in naval battle equipment, and it, too, is destroyed by this wonderful tug which the patient himself commands; at the end of it all a martial "crowning" is given by the tug in a final salute to the world, and the patient runs up his family flag at the masthead with his own personal flag at the top. The conquest being the entire subjugation of a nation by force of arms, one sees the conquest is probably commercial supremacy by way of the

symbolism of naval engagements, possibly aided in this latter setting by the fact that the patient's first name is that of a once famous admiral. It may be added that the dream occurred before there were even any rumors of a European war. It is interesting to note that day dreams often seem to provoke an ambitious night dream; the patient by request had made up a day dream the day preceding the night dream mentioned above. The day dream contained a relatively normal wish that the patient should finish college and go into the father's business, having charge of a modest architectural job under the father's direction. The magnitude of the unconscious strivings appalled the patient.

After a slight fancy for a girl friend the patient had a dream in which he moved his household furniture (marriage, founding a new home, etc.) a long distance. He, the patient, trudged on foot while the boy and girl companions rode on the moving van. They gradually drove out of sight and left him walking on behind. He felt inclined to turn back home and after all felt lonely, depressed, and as though he might have an attack. With thoughts intimately fastened on his father and the home he was leaving he nevertheless hurried on to the final destination only to find that the greater part of the furniture had been unloaded on the side of a fence by the roadside where the boys were, and a scanty amount on the girls' side. He was a bit chagrined as he had given orders at the start quite otherwise. He was easily pacified, however, as the boys had arranged things satisfactorily and they all lay down to spend the night together, the boys with him and the girls by themselves on the other side of the fence (a homosexual dream). It was comparatively easy to unearth from this an analerotic period (infantile) when our patient as a boy indulged in homosexual relations with boys and animals. He had thought as a child that babies were born by the rectum, had many of the characteristics of feces about them, and hated to touch little babies in consequence; next he thought that the umbilicus was a closed rectal passage for childbirth. He had persistent bed-wetting until he was twelve years old, frequently retained his feces, and required frequent enemas. He also had an extended and elaborate fancy regarding the anal and urethral discharges. He is still much obsessed regarding the causal importance of a disordered digestive system in his disease, which unfortunately the natural trend of modern treatment of the epilepsies only too frequently intensifies with its dietetic restrictions, attention to action of the bowels, colonic irrigations, etc.

We find our patient consciously and often unconsciously in the dream opposed and always indifferent to women, and we find that he has always preferred the society and company of men. Innumerable day settings as well as night dreams show the homosexual tendency and father, uncle, and grandfather attachment. The dreams are filled with strivings to this end. As regards the epileptic attacks, the first one succeeded a few nights after several sleep walkings. He had a fanciful liking for a college girl at the time and was annoyed at the family's teasing him about it. He had seen her but two or three times, never alone, and no sentimental conversations had occurred between them. Several months intervened between their seeing each other and they never corresponded; it was a slender enough thread upon which to hang the family accusation (brothers and sisters mostly) of an engagement, etc., yet it annoyed him and the dream walking had an object to find the father, went to his room and in one instance mistook his brother's and another time a man friend's bed for the father's and got in bed with them, and when they fled from him he was annoyed and awakened. It must be said he had a rather late and prolonged masturbational life, never attempted normal sexual intercourse but once, when he felt degraded, depressed, and never tried it again. Whenever he occasionally had any sexual desire he got out and wrestled, boxed, and played athletic games with the boys, the rougher and more physical contact the sport entailed, the better, etc. Just at the sleep walking period, the getting rid of the vexatious teasing of the family about girls and the repressing of masturbation fancies, he reapplied himself more energetically to his architectural studies and went with the uncle and father on business trips, yet felt "dissatisfied somehow—couldn't seem to get on fast enough to taking up the life work." The real desire was to enter the father's business, take the

brunt of the work from the father and make him take it easy, as the father "is getting on toward sixty." In other words, the real desire was not only to get in touch with the father in personal and business relationship, but to succeed him and take charge of things himself, do creative work, and become an arbiter of his own and the firm's destiny—a state of egoistic unbounded ambition (*Allmacht*). Then the grand mal attacks occurred, preceded by headache, depression, feelings of increased nerve tension, and a sense of extra physical and mental restlessness. The attacks always cleared the atmosphere, and he felt better than ever as soon as the muscle soreness was past. He couldn't understand the family's concern about his disorder, as he seemed in better health, aside from the attacks, than ever before. The gloom and depression passed, the sleep walking and headache disappeared, he felt no more sexual tension, and reapplied himself to his studies with renewed energy. Then the attacks became more frequent, occurring once a month, and college work and business trips with the father had to be given up. This depressed him still more and "made his attacks more frequent." Things went "from bad to worse" under a bromide therapy he felt as though his head and body were full of something that should be gotten rid of. He lost ambition, felt confused and lethargic, but the increasing attacks after a slight period of repression by the bromide cleared up the repressed state. Then he began to dream of fire, assaults and robberies, and bloody deaths. Soon after this period, the bromides were gradually removed and instead a substitutional plan of rational living was adopted. He improved greatly under this treatment. Still athletics was not a large enough outlet for his libido. It had been blocked of egress by way of masturbation, while heterosexuality was rather disgusting, and he could not go on fast enough to take up the father's work nor follow him in the field of daily activity. He steadily enlarged athletics to make it mean more to him; the objective was the same as entering the army and navy—it gave an excellent chance for him to get into close and intimate relations with men. It is therefore in an athletic setting that one finds the greater number of petit mal and grand mal attacks occur, when he is not satisfied or the issues become too stressful. In one game of closely contested ball he stood still while fielding and said, with the utmost confidence (the game was going against his men; he was captain of the team): "We've got them at last. I'll put it over on them; yes, we've got them down and out, beaten to a frazzle." He came out of the attack elated, but was soon very depressed in the continued defeat he suffered. He went home with a headache.

In a competitive game of tennis with his father, grandfather, and uncle were closely watching the game, a petit mal attack occurred. He stood quite still and continued to toss his racket in his hand and was heard to address his uncle who ran up at his delay in playing, "Ah yes, it's pretty soft, pretty soft, and we've got them four to one." In point of fact the score was 4 to 3; his was the winning side. Earlier in the game the score had been 4 to 1 in his favor, but he was losing and in pushing the game faster he had the attack. He lost the game. As is to be expected, the 4 to 1 had a deeper significance. When a young boy he saw a dog with insufficient erection with one single copulation beget four puppies. He always envied such a virile power in a dog and thought he might some day emulate the experience in his own marital relations. To beget quadruplets at a single birth incidence is a characteristic ambitious fancy to be encountered only in the infantile period of life.

It is interesting to note that the "thing grows upon the thing on which it feeds" in that a feeling of sexual tension used to be aggravated by thoughts of athletics (finally analyzed to be centred upon the thighs of the male figure, allied to which fancy one may see in the homosexual ideas of Frederick the Great as related in Carlyle's history, and in Frederick's poem upon the beauty of the vanishing forms of retreating soldiers). The new aggravation was to be appeased or compensated for by more and more athletics. In the patient's words, it is literally true that athletics has grown to be the "one passion" for him. It is well known one is not often able to call up the unconscious of the severest grand mal; it is probably too profound of allied to an all pervading state of *Allmacht*, the "perfect oneness" of the infant life. Another and later

case in the study will show this exquisitely. However, it may be said—in the terms of symptoms of an increased (libidinous) nerve tension before the fit in this case—that the riddance of the same after the fit and the feeling as though "I float away or off into an effortless state, from which I seem not to care to return to this life" are statements of fact that make one believe the grand mal are but larger and cruder discharges of these nuclear energies seen and analyzable in the minor attacks. In a few grand mal attacks our patient executes some very crude but characteristic muscular movements as though in actual sexual intercourse. This is often seen in the very beginning of the attack before the intensive "clotted mass of movements" of major development of the convulsion. Often, as in one instance in particular, the patient turns over on the bed, face down, grasps the bars at the head of the bed, and finishes the cloni with grunts and a meaningful appearance of satisfaction on the face that is all characteristic of a terminating sexual act. That there is often no discharge of sexual substance in such fantastic movements, but adds the more reason to MacCurdy's contention that a so called normal adult sexual intercourse is itself really a sublimation of the unconscious strivings of the libido. The unconscious is really not obliged to encumber itself with the cloak or drag of reality to gain its desired ends. It has best to think or wish the thing done. It thus assumes all the mythological power of the gods.

To summarize Case IV, we have in this patient a clear history of an idiopathic grand mal epilepsy. The patient is a robust individual, who has a strong and energetic personality at bottom of a marked egotistic type, who has had an extended analerotic infantile life and developed his sexuality at a late age (fifteen to seventeen years), apparently because of a prolonged and intense grandfather-uncle-father complex. He further developed a strong homosexual attachment (to father and athletic young men), had no extended masturbational or heterosexual life, and though he has enlarged the significance of athletics to meet the growing libido, finds the latter does not satisfy the sexual hunger of the libido. In this situation, in association with the aggravating teasing about a girl affair he begins to sleepwalk, to find the father and his own sex, and gain the more satisfying homosexual relations of the infantile life. Soon the conscious inhibitions (athletics, study, and nominal associations with the paternal complex) are broken down or the unconscious strivings force the armor of consciousness, and a fit is the result (the many alleged causes—indigestion, overstudy, too much competitive athletics, etc.—are seen in their merely precipitating relationship to the real underlying causes). We find the analyzable data of the minor attacks to be a partial disguise of a wish fulfillment which possesses a distinctly sexual content. The grand mal attacks would appear to be but larger and cruder forms of the same libidinous discharge as are evident in the lesser fits. The individual, therefore, has a partial discharge of his libidinous energies by way of the fit which is a homosexual, or occasionally, a narcissistic gratification of the unconscious. It then is an incomplete instance of the proper or normal sublimation of the libido. It is gratifying to note that as a result of the analysis the patient has had no grand mal attacks for months, wherein several might have been expected, and but two minor attacks have developed during this time. The general flexibility of the libido has permitted the patient to open many avenues of satisfying interests not formerly utilizable (such as gardening, shop work, manual training, and a limited employment in the

father's business). All physical neurasthenic symptoms are absent, and our patient appears to be adjusted to the full requirements of the demands of his libido. He has good hopes of finishing in the upper part of his college class this year. In other words, he is sublimating his libido into normal channels of everyday adaptions. However, it must be added finally that the sublimation has been most successfully directed into a homosexual sublimation. The dreams show that the essential foundations of his biological being (homosexual) have not been altered.

CASE V is that of a boy, aged eleven years, who began his epileptic career with "absences" at five years of age. These petit mal attacks consisted of cessation of what he was doing at the time for ten or twenty seconds; the eyelids drooped, he became a little pale, the pupils dilated and remained rigid to light. These absences occurred as many as twenty times daily, although they have been less frequent since the onset of grand mal eighteen months ago. He has an average of one grand mal attack with tongue biting preceded by many petit mal every three weeks. The minor attacks increased in frequency and severity just before the grand mal seizures. Often if the minor attacks are sufficiently severe, frequent, and prolonged, the grand mal seem obviated. In other words, other things being equal, the infrequency of minor attacks means that the grand mal seizure may be more severe and frequent. The large number of minor attacks are but grand mal discharges cut up into short and slighter states of "absences." The boy is a healthy, good looking fellow for his age, a little under height, and weighs eighty pounds. Physical examination was negative. No cause was assigned for the disorder and no obvious one was found on ordinary examination. A moderate degree of neurotic paternal stock is present.

The boy is the only child. He has a good school record, but was not specially studious; he was very fond of outdoor sports. He has always been overactive, self reliant, rather conceited, and "cocky." He closely resembles the father's family in physical development and temperament. He likes boys best and shuns all girls. As a child until nine years of age the mother "spoiled him" by putting him to bed, petting and caressing him to sleep. The favorite method of soothing him when he was nervous and fidgety, was to have him lie on his face while the mother massaged his back, the buttocks and shoulders especially. This procedure immediately quieted him. He felt a languor and was at "peace with all the world" (the boy is very precocious in language and is apt in describing many phases of his own case). He now even declares with boyish pleasure and strong emphasis: "Gee! those rubs were the finest ever! They took out all the kinks in your mind as well as your back." The extraordinary satisfaction both mother and son derived from the massage finally caused its suspension much to the lasting regret of the boy. In a close study of the boyhood development one finds no special or noteworthy defect, except the mental precocity; the extraordinary overactivity of mind and body is certainly very abnormal even when one bears in mind the active normal boy at this age. While he is fond of his mother and relies on her for comfort and sympathy, he rather courts his father's attentions. This parent holds his respect and admiration, not so much because of his mental or professional attainments, but because he is a man and has manly attributes. Even the father's hasty temper is excused in boyish ways. For the past year he has steadily increased in restiveness at being "tied to the mother's apron strings," and at the first interview with the new nurse companion to be placed on his case (a college boy of twenty-three years, bright, happy, and of an athletic bent), the patient "fell in love with him at first sight." Since that period the nurse is never out of his sight; the boy has left home, mother, and father behind, and devotes himself to the new controlling agency heart and soul. The boy is neat and orderly and strives to please in every way. He slavishly courts his nurse's admiration and approval. He doesn't want to go back home, yet is fond of his mother's letters. He openly courted the nurse's petting and fondling, but not getting this, he was "peevish" at first and then

gradually "squared himself" to win the approval of his nurse whom he affectionately calls "Bill." The closeness of the attachment reminds one of the college chum; the relationship is not unlike many another which one sees in the associations between boys and their teachers, and is emphasized here only in the apparently exclusive and intense longing of the boy for this nurse-trainer only. He wanted to go to bed with him, but feared the "nervousness" might be increased thereby and that "Bill" wouldn't like it. He is extraordinarily curious to see the naked person of this attendant and finds it very difficult to refrain from it in spite of reproof and at least one slight castigation for such continual disobedience. He is very narcissistic and worships his own body before the mirror for hours, if allowed to do so, and assumes poses there. The latter pleasure, however, is lessened of late if he can get the opportunity to see the person of his nurse-attendant. Up to this point in the history, one sees the prolonged mother fixation which unduly hastened the sexual development. He then entered the narcissistic state of self body love and the final homosexual trend of attachment to his nurse, the probable stages of development in many another epileptic in this study. So far nothing has been brought forward other than to show that sort of individual subsoil upon which the epilepsy developed.

We find the boy's mind literally obsessed with sexual gropings at five or six years of age. He began masturbating at six or seven years as soon as the massage ceased. He has performed the act in spite of maternal injunctions to the contrary. He has known of the relationship of the sexes since he was seven years old. For a year and a half he has not masturbated (the time the grand mal appeared), yet simply talking about it and wrapping up in bed makes him feel like doing it, "a sort of jumpy feeling shoots through the body" from his genitals. He thinks the masturbation and the epilepsy had something to do with each other, even before the mother spoke of it to him. (The quaint conception of worldwide influence of sexuality this boy of eleven years possesses would make a thesis in itself.)

Now we shall come to a direct inquiry into the epilepsy itself with a verbatim monologue of the boy's own account of his feelings in the attacks: "As the absent minded spells come on, I dream of something far off—it is all mixed, the ideas, just like a dream when I am asleep, when I am at a party and lots of boys are around or we are at Indian play. Usually it is this: I am flying in air or something. I am usually having a smooth sailing about. It is never unpleasant, but just fine. The harder and longer the dreamy turns are, the more satisfied I seem to be in this dream state. I wander, float away, maybe I glance against something, and then shy off again to float about in a different direction. I only feel bad about it all when I become conscious again. I only remember the beginning and ending of the hard ones (grand mal), but in the moderate sized ones I get the most definite dreams. I take up the things around me and make the most fantastic and queer things out of them; for instance, I think people moving about me are really trees and their talking is running water and wind blowing about. It is quite an unnatural happening. Then there often comes a sickening of the stomach because of the motion. In the last bit of the severe attacks I begin to piece things together and make them seem real and natural (returning consciousness). As I gradually go into the deepest part of the severe attacks, the dream grows more confused and mixed up; it gradually fades out, and I simply lie in the air. I float without moving, and my feelings are as though I don't care about anything; it is so peaceful and quiet. I am as happy as people who take dope (read about in books). I feel as though I want to keep on going, as though I didn't even have to breathe, as though I were living without doing anything and yet I was not living—you know, as we mean in everyday life. There seems to be no bottom on which things rest; all is without foundation, it is just suspended, afloat as I am. It seems as if the attacks come over me, enfold me like great arms (rather puzzled for the right word); no, like great floating blankets that roll me up and fold or bundle me in. Gee, it is a queer kind of state! I wonder how I ever got those ideas and feelings; I've never had it happen to me, I mean when I am conscious. I seem to have been in the state many times before and often, yet I can't see anything like it about me in real (?) life. I think the first absence I ever had was

just one of the first things I can remember. I had been eating chocolate chips. I liked them very much; I brought some back with me for a neighbor. Mother was away and I met the cook and I tried to hide the candy behind my back, but the cook was about to take it away from me and I had a dreamy spell. Now I always feel guilty—or ashamed like—when I've had one of those spells around where people are. If I am alone and they don't know about it, I don't have the guilty feeling. I don't like to talk about them before people. I don't mind the doctor and Bill. I feel the same kind of guilt when I used to abuse myself, only the guilt of the spells is the kind when you are not responsible quite—more ashamed like—while the feeling after the abuse is as though you were really responsible and really guilty of having done something you ought not to. The feeling (very old expression in face as though he were trying to get the exact word to explain his feelings) has a touch or tone of guilt without it really being so. That's it (expression of great relief); anyway I guess the two kinds of feelings are cousins if not brothers at bottom. After both I feel as though I'd like to shirk out of them, as though I didn't want people to know about either one. Oh, I forgot to say I like to kill snakes. I kill them in my sleep dreams, but never in the spell dreams. I had a peculiar spell this morning. I had been taking my cold rub and instead of dressing I felt cold and a dizzy turn came on and I went back to bed and folded the blankets over my head, and that seemed to stop it all at once. I really went back to bed because I felt cold but maybe I went back and folded the covers over my head because the spell made me do the thing (folding or bundling up) which the dream spell seems to want me to do."

It seems hardly necessary to comment upon the wish fancy in the attacks as being a beautiful, almost allegorical description of a return to the mother life. The boy's description is almost a classic one of its kind.

To summarize Case v, we have here a youthful epileptic possessing the epileptic constitution, in whom there occur both grand mal and petit mal attacks of a classic character. By analysis one finds the boy had an intense mother fixation due in no small part to the practice of massage, which aggravated or heightened the sexual development of the erogenous zones. Later the boy had a prolonged own body worship (narcissism), which finally turned homosexually to his nurse and is now being sublimated and repressed through encouraging feelings of shame, disgust, etc.; the sublimation is through work, play, study, etc. We see the dreamy turns are motivated as are ordinary sleep dreams; and that in them dwells the wish for attainment to the state of mother life and its Nirvana. The epilepsy therefore serves as an example of a libidinous gratification of the infantile wish. The infantilism is a defect in the normal development of the sexual life, a fault in earliest training made or brought out the defect and thus we have an abnormal psychosexual development. Under the new

A part of an other free monologue ought perhaps to be given. The boy says: "I realize now that the other mind in the absent minded spells really does enjoy the spells, but gee! how I do hate them! I am apt to go into the spells so suddenly I can't get to see or know anything about the other mind, but I come out of the spells so slowly now, I can hurry them off or hold them on for a little while and catch sight of what is really going on in it before it goes away. The spells are like a more restful sleep when the dream is going on, and you want to finish something or get some thing more before you let it go. In my sleep without dreams I am glad to wake and get up, but in the dreamy sleep and these spells I feel that the other mind must finish something that means a good deal to it and it must not be disturbed. I want to be let alone then and don't want anyone to touch me or shake me until it is all finished, that is, that other mind wants it, but I hope now they will always take me out of the spells. Gee! isn't it funny that the two minds want the thing (spells) settled in an entirely different way? No, I guess it would be funnier if they were alike. I want to make the other mind be satisfied with what this everyday mind is trying to do and help it along to get well and strong instead of getting its own way. Say, Doctor, I tell you what, let's find out why the other mind really acts as it does, what the spells mean to it, and let's let the everyday mind do those sorts of things that will give it satisfaction, but in another way than by the spells."

plan of training treatment with a common sense view of the foregoing and that youth holds many polymorphic perverse tendencies, the boy is steadily growing better of his epilepsy. The attacks, although the boy is entirely without sedatives, are not a third as frequent as before. He no longer has the highly volatile nervous temperament, but sleeps, plays, and works in a fairly normal manner. It is in such cases, everything being equal, that our new knowledge of the nature and significance of the disease may be of greatest value.⁸

(To be concluded.)

Dry Vegetable Cure in Diabetes mellitus.—M. Labbé, in *Bulletin de l'académie de médecine* for January 13, 1914, states that the oatmeal cure does not sufficiently support nitrogenous metabolism. A diet of dry vegetables yielded excellent results in the author's hands. The patient took daily ten ounces (300 grams) of vegetables, five ounces (150 grams) of butter, three to six eggs, and the same number of aleuronat or gluten rolls. A small amount of green vegetables may also be permitted, but no meat. For the ordinary dry vegetables—peas, beans, and lentils—soy bean may be substituted.

"Whether the epileptic manifestation is in a minor attack, a grand mal fit, a psychic equivalent, or a replacement delirium, the essential motivation of the phenomenon is the epileptic episode is a libidinous one, proportionate to the strivings of this energy in the unconscious life of the individual. The more highly elaborated the psyche of the particular person is, the more expressively and exactly may be detected the inner motive of the fit. Thus, in the case of Dostoevsky's disease (epilepsy). This Russian novelist, a neuropath of the epileptic constitution, and born of neuropathic stock, possessed with superabundant energy, early turned to literature as a profession and wrote most feverishly his epileptic life in these writings. His attacks were furthermore part grand mal and occurred monthly. He had prolonged premonitions of his attacks which sometimes were heralds of attacks which were aborted. The fits were frequently often preceded by a feeling of intense joy and fatigue frequently being their initiators. He stated that he always had a feeling of ecstasy at the initiation of the attacks. His sensations of happiness were so intense that no normal mind could appreciate them. His feelings in the attacks were in complete harmony with the world and for a few seconds of them one would give ten years of his life. Afterward he was prostrated, felt "discharged" and depressed. He felt himself a criminal guilty of some offense unknown to him. Numerous citations of his infantile, egoistic, and irritable disposition might be given both before and after his malady developed. These characteristics were greatly accelerated after the disorder became fixed. As a child his attachment to his mother had been remarkable. He related the circumstances of his first fit: He was in exile and suffering punishment in confinement, isolated from fellowship with any rational person. Suddenly an old friend visited him on Easter eve. Forgetting the sacredness of the occasion both began to converse on literature, art philosophy and religion, hours passing. The friend was an atheist, while Dostoevsky was a believer in Christ and immortality. An argument started. Dostoevsky became greatly excited. It was now Easter morning and the bells began to call the faithful to arise. Dostoevsky felt a sense of ecstasy (as he always did afterward in the premonitory stage and even far into the fit). He was in paradise (as is also related of Mohammed, another epileptic). During this ecstasy the attack advanced to the final "loss of all about him." Even as he related the circumstances of a Sophy Kovalsky's death, he said to articulate, the facial muscles twitched and he had a minor attack. It is interesting to note that Dostoevsky heard the church bells as an auditory aura (none really rang at that time as Dostoevsky afterwards confessed), and the unspeakable ecstatic feeling he had then and ever after was a (flight) feeling of his oneness with the future life. While he wrote *The Devil*, his disease not only began to tell on him, but he had an unusually large number of attacks during the work (frequent flights to paradise). The work lacked, above all his other works, in cohesiveness and continuity and abounds in vituperation, malice, and intolerance (father hatred). His mother, always sickly, died when he was thirteen years old; he felt her loss keenly, even had psychic attacks for months after, and was brought up by his stern father, a severe disciplinarian and an ascetic. On his father's death a severe childlike emotional makeup throughout life. He was long given to "lethargic sleeps" and anxiety about the future. He lived at times in "dreams" for long periods. When he began to have troubles with the government (revolt for earthly authority, the father image) his neuroathenic state left him entirely. Over and over again Dostoevsky writes his feelings of ecstasy, harmony, the oneness with the universe and truth, the sublimity and the light of all unfading such as are only attributes in folklore and mythology to a life among the gods; this and more of the state of *almichi*, peace and joy flowed in the epileptic character and attacks which many of Dostoevsky's creations possessed—in at least five of his novels there are as many cases of epilepsy. On the whole, Dostoevsky is himself an admirable example of the disease in which the fit possesses an ushering engrossment of the infantile concept of the return of the soul to its final harmony, the nirvana of the mother life.

THE TREATMENT OF EPILEPSY.

With Especial Reference to Venesection.

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The pathology of idiopathic or essential epilepsy is still a vague uncertainty, and our remedial measures are almost, if not completely, based on empirical lines. We have ample reason to believe that in this affection the cells in the higher centres of the brain are very unstable and prone to pass from normal functional relations into periodical occurrences of spasmodic activity. Numerous theories have been advanced to explain this phenomenon, each more or less plausible, and supported by pathological and clinical evidences of varying degree, but as yet no theory or theories have sufficient supporting evidence to satisfy more than a small minority of investigators.

One phenomenon certainly is an accompanying factor in almost every epileptic, and is very pronounced just prior to and during the paroxysm, and that is *increased intracranial pressure*. Whether this increased pressure is due to increased blood pressure within the cerebral bloodvessels (and elsewhere) or to a transudation of blood serum (edema) into the brain substance, or to a sudden increased tension in the brain ventricles from sudden increase in the quantity of cerebrospinal fluid, it is difficult to say. In all probability the three factors cooperate, with predominance of the first. A somewhat similar phenomenon occurs in bronchial asthma and angioneurotic edema, in which there is a periodical sudden exudation and increased tension within the vessels of the bronchi and skin respectively.

I propose in this paper to advocate almost exclusively a method of treatment of true or essential epilepsy based chiefly upon efforts to reduce this intracranial pressure to normal and to maintain it in this state. First, let us briefly survey the usual methods employed in the treatment of epilepsy.

Before undertaking the treatment of any case of epilepsy, it is of the utmost importance to take an exhaustive history of the patient, with especial reference to toxemia, i. e., alcoholism, arsenicism, plumbism, hydrargyrim, malaria, diabetes, and uremic attacks. The personal habits must be carefully gone into and the diet and drink, including tea, coffee, alcoholic beverages, as well as indulgence in tobacco, must be noted. The history must be supplemented by a careful physical examination and a laboratory analysis of the urine, feces, blood, gastric contents, and sputum.

A consideration of the nasal mucous membranes, teeth, eyes, and genitalia (especially in boys) must not be neglected. The absence of discoverable etiological factors will brand a case as one of idiopathic essential or true epilepsy. It is this form of the disease that tries the soul of all concerned. Before deciding that we are dealing with it, we must remember the possible presence within the brain of the various sequelæ of traumatism, tumor, depressed or thickened bone, scarred tissue, localized hypertrophies of dura mater, etc., which when overcome by the proper surgical measures may, by

removing the cause, cure the patient. Occasionally great difficulty arises in excluding a focal origin of the disease, especially in the absence of headache, optic atrophy, and vomiting. Yet if the attacks are focal in character and if other measures are of no avail, exploratory operation should be seriously considered.

Having concluded that we are dealing with a case of true epilepsy, the treatment may be divided into four headings: 1, Dietetic; 2, hygienic; 3, medicinal, and, 4, measures to reduce intracranial tension.

1. The hygienic measures, in brief, consist in the careful supervision of rest, exercise, clothing, bathing, amusement, and personal habits. The mental and moral control of the patient, especially if he or she is of school age, and the control of school life are of great importance. Fresh air should be at all times available. Many of these patients sleep too much. While it may be unwise abruptly to reduce the number of hours of sleep to normal, the desired result may be accomplished by slowly increasing the cerebration of the patient by interesting him in topics which will activate his mental centres without causing strain or exhaustion. The reading of light classical literature, the discussion of current topics, etc., are useful. On the other hand, if sleep is restless and not refreshing, a warm bath at bedtime supplemented by a cupful of hot milk will be of assistance. Occasionally a hypnotic may be necessary.

Exercise should be moderate and preferably out of doors. Farming, gardening, light games, etc., are appropriate, improving elimination and metabolism. Such strenuous exercise as bicycling, football, or swimming should be prohibited. Massage is useful in some instances, improving the peripheral circulation and enhancing the functions of the skin. Bathing strengthens and equalizes the circulation. Though each case presents its own indication regarding hydrotherapy, every epileptic should have daily one cleansing bath at least. The personal habits of these patients should tend toward peace and tranquillity of the mind; all nervous strain, emotion or excitement must be avoided.

2. The diet should be as nearly purin free as possible. The meals should be characterized by a minimum of meat, fish, peas, beans, lentils, etc. Salty meats, fried substances, sweets, and highly spiced rich foods must be prohibited. The diet should consist largely of milk, eggs, bread, butter, raw and stewed fruits, and some vegetables. Tea, coffee, tobacco, and alcoholic beverages and also the condiments of the table should be interdicted. Over-eating should be guarded against, as it may inhibit the eliminative functions. Plenty of water should be insisted upon.

It must be remembered that the prescribed diet should be the outcome of strict individualization. A special study of the patient's digestive functions, and at regular intervals the examination of a twenty-four hours' specimen of urine and feces will assist in avoiding metabolic errors. Constipation if present should be overcome with a minimum of drugs. If a laxative is indicated olive oil is to be preferred; but sodium phosphate and cascara may be deemed advisable. The flora of pathogenic

bacteria in the intestines may be reduced by sour milk, buttermilk, or one of the culture preparations of lactic acid bacilli.

3. The profession is gradually realizing that drugs play a minor role in the treatment of epilepsy and that the usual remedies, bromides, chloral, morphine, hyoscine, etc., do more harm than good. The chief objections are: 1. They create the drug habit; 2, they impair digestive functions and retard elimination; 3, they are harmful to the circulatory system and prone to disorganize the blood constituents; 4, they greatly depress the mental and physical activities, rendering the patient more or less useless to himself and to others.

The various depressant drugs employed in epilepsy produce their temporary effect or "benefit" chiefly by overcoming the excitability of the cerebral cells and by tranquilizing and equalizing the circulation by reducing the blood pressure. This latter effect reduces intracranial tension, but in doing this service, these drugs, as intimated, are capable of causing considerable harm. It is quite reasonable to conclude, therefore, that mechanical measures to produce a lower intracranial pressure, especially venesection, are greatly to be preferred, as their benefit is not only more durable but is at the same time associated with practically no harm.

Though bromides seem to have their place in some cases, small doses soon become useless; large doses accumulate in the system, resulting in bromism. The acne covered epileptic with staggering gait, who has been saturated with bromides, is a frequent picture on the highways of our large cities. The iodides have been used with success in some instances, as in bronchial asthma. The same may be said of nitroglycerin, and the nitrites. Solarium carolinense or horse nettle is useful, especially in children. The following formula has met with varying success:

R Liquoris potassii arsenitis,gtt. xii;
Fluid extracti solarium carolinensis, }
Acidi hydrobromici diluti, }aa ʒi;
Aquæ cinnamonomi, q. s. ad.....ʒvi.

M. S.: Two teaspoonfuls in water three or four times daily for a child about twelve years of age; the doses may be varied according to the age of the patient.

In a small percentage of cases with symptoms of myxedematous infiltration of the skin, marked benefit may be obtained by the careful administration of thyroid extract.

4. Under the heading of mechanical measures to reduce intracranial tension, we may consider venesection, trephining, lumbar puncture, autotransfusion, catharsis, diuresis, and diaphoresis. Of these measures, the first three are of the most importance. As already mentioned, an attack of epilepsy in the great majority of cases means a sudden occurrence of undue intracranial pressure. When this excess pressure is removed the fit is over. The status epilepticus is usually associated with a continuously abnormal pressure, in which case it can easily be demonstrated that a venesection results in prompt recovery. The increased intracranial pressure is probably largely due to the excessive quantity of sanguineous fluid in the vascular system, as evidenced by the fact that the majority of epileptics are plethoric. The apparent anemia in

some cases may usually be attributed to the continuous destruction of the red blood corpuscles by the drugging of the patient with bromides, chloral, etc., the actual *quantity* of sanguineous fluid being sufficiently above normal to maintain an abnormally high pressure within the skull and elsewhere. In view of these facts, the reduction of intracranial pressure in this disease is theoretically reasonable and practically applicable with surprisingly good results and occasional complete cures, especially when venesection is done.

It is through venesection that we obtain, not only a reduction in intracranial pressure, but also a universal reduction in blood pressure, which is a desirable thing in the presence of nervous instability. As for trephining, sufficient benefit has been obtained with this measure in a reasonable number of cases to warrant its use; occasionally a cure is reported. The same may be said of the removal of cerebrospinal fluid via lumbar puncture. But these measures are more difficult to perform than venesection; their effect is strictly local; there is some element of danger in their performance, especially in trephining, where there is the added objection of a general anesthetic.

The stimulation of the emunctories by means of catharsis, diuresis, and diaphoresis, is capable of reducing blood pressure, but these measures are not practical, as their frequent employment entails the use of more or less drastic drugs which may do as much harm as good. It is advocated, however, that the functions of the bowels, skin, and kidneys be maintained in a normal state to supplement venesection, by the use of mild remedial measures if those organs are found tardy, as in this way better results may be obtained.

Autotransfusion has been tried more or less unconsciously and often with success when the thigh of the patient is tightly bound with a towel or bandage in an effort to avoid a fit. This procedure is mentioned in most textbooks. It is not the pressure or shock exerted by this procedure that prevents the attack, but the reduction of blood pressure and intracranial tension, because of the retained blood within the leg, brings about the desired result. If both thighs were treated in this manner the chances of averting a fit would be much greater. Although this procedure has its value, it cannot be substituted for venesection for obvious reasons. To conclude, then, the reduction of intracranial tension by the general reduction of blood pressure through venesection, seems the most practical method.

Regarding the technic, the simple method of venesection is to be preferred. Briefly it is as follows: Apply a tourniquet or bandage with moderate firmness around the upper arm so as to render the veins about the bend of the elbow more prominent. Pressure should not be sufficient to obstruct the arterial circulation. Under strict aseptic precautions, a few drops of a two per cent. solution of novocaine is injected over the vein selected, i. e., either the median basilic or the median cephalic. With a sharp scalpel an incision about one quarter of an inch long is made through the skin directly through the vein selected. Immediately there will be a satisfactory stream of blood issu-

ing from the vessel, which can be collected into a glass graduate or a sterilized milk bottle and the desired quantity measured. This little operation is completed by the removal of the pressure bandage and the application of a firm compress and bandage over the bend of the elbow. The incision usually heals over, forming a tiny scar, within three or four days. This method is far preferable to the classical lengthy procedure usually attempted. Furthermore, there is scarcely any scarring, it is easier to perform, requires no sutures or ligatures, and there is rarely any tendency to infection.

The amount of blood to be removed varies with the size or weight and the condition of the individual. If the patient is highly plethoric in appearance and is an adolescent weighing approximately 145 pounds, the proper quantity of blood to be removed is from twenty to thirty ounces at a sitting. As a general rule it is preferable to remove a few ounces more from a patient in question rather than too little; the procedure in each patient being guided by existing indications.

Regarding the frequency of venesection in epilepsy, it is difficult to set down a distinct rule. In my experience with the few cases I am about to report, it was necessary to perform a venesection every two to six months. The indications presented by the patients for the succeeding venesection are a return of dizziness, "fullness in the head" and flushing of the skin. These symptoms are usually premonitory to an impending fit unless venesection is at once performed. In these patients there seems to be a growing tendency toward the restoration of the stability of the cerebral cell and normality of blood pressure and circulation, with the gradual lessening of the epileptic "habit," as evidenced by the fact that in patients for whom this treatment has been employed for two years, venesection seems indicated with lesser frequency as time goes on. It seems quite possible with the further employment of this method with cases on hand that complete cures will be effected in due time.

The contraindications to venesection in epilepsy seem very few in view of the fact that the great majority of these patients are plethoric. However, in the occasional anemic patient it would be unwise to remove more blood and increase impoverishment. Epilepsy in this case may possibly be due to the anemia; the lessened viscosity of the blood resulting in the transudation of serum into the brain substance and ventricles, increasing intracranial tension, and resulting in cerebral instability. The indications here are those measures employed to improve the quality of the blood and its circulation.

Is venesection *alone* to be resorted to, as described in this paper? In my opinion, in the patients under my care are not given any drugs; the only additional treatment being one hygienic and dietetic regulations advised. However, there are certain patients to whom it would be advisable to administer such substances as sodium nitrite, potassium iodide, and the extract of thyroid gland. An occasional hydragogue cathartic, e. g., magnesium sulphate, magnesium citrate, may be found useful in selected cases to assist elimination and reduce blood pressure.

4. The reduction of intracranial pressure by the removal through venesection of a quantity of blood sufficient to overcome the plethora and high blood pressure, appears the most rational measure to employ.

5. This treatment (venesection) not only relieves the patient, but seems to favor a complete cure by overcoming the epilepsy habit.

6. The frequency of venesection and the quantity of blood to be removed at a sitting depend on individual circumstances.

7. Dietetic and hygienic measures should supplement the treatment in every case. Occasionally the administration of thyroid extract or potassium iodide may also be deemed advisable as a supplementary measure.

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Abstracts and Reviews.

CIVIC RESPONSIBILITY OF THE PHYSICIAN.*

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During these days of political unrest we hear much of civic responsibilities. It is unfortunate that such a valuable and proper subject should be abused to aid political climbers who have too few merits either of mind or morals. It is fortunate, however, that we are having our attention brought to the study of civic problems, and while much that we hear is based on the crudest sort of hasty emotional thinking, often with the least possible amount of actual knowledge, it does encourage people to think about the fundamental principles of society and of the relations that exist between the parts. It tends to bring about a clearing of our conceptions of the physiology of the State, where before we rested content with mere anatomy.

That this new civic analysis should invade the medical world is more than an accident, because the nature of the problems and the sort of analytic processes are such as to be eminently part of the domain of medical thought. More than this, many of the problems of civic analysis cannot be solved without the aid of medical knowledge. There is at present no other group of students whose business makes them familiar with all of the human being. Other groups study more or less limited parts of the output from the man-animal, but have only the crudest notions as to the relation of the machine and its product, and all their discussions as to how to develop man power are more or less pitifully absurd.

At present there is no other profession whose duty and practice make its members in the least degree capable of becoming man engineers, who can be consulted or trusted in questions related to what underlies, influences, produces, or harms human efficiency. The political and social sciences of the present treat the human units as usable or as needing care and thought, but they do not seem able to

grasp the great problems of what those units are in themselves.

At one time we had hope that the psychologists would open up a field, but their pitiable failures along this line are patent to every man of larger experience, and we are forced respectfully to place psychology as one of the subsidiary sciences in medicine. We had hopes that a true anthropology might arise, but apart from medicine it tends to descend to a specializing pedantry which, while valuable and interesting, fails to give us rational and usable values as to the complete unit we call man, which unit is the basis on which all civic organization is built.

It is evidently impossible for the true science of civics to "arrive" without an insight into all the things which make man a moral, mental, and physical engine. It is highly improbable that any other profession ever will supplant that of medicine in this field. Civics must rest on medical knowledge. Strange as it may seem, this has escaped the observation of the workers in the isolated sciences of which medicine is composed, and the community has too docilely followed the lead of these subsidiary medical sciences and does not realize the true composite nature of the contents of medical thought. Unfortunately too few practical physicians have stopped to consider these things in a philosophical manner. In fact, the busy doctor has little time and energy to develop a clear philosophy about what he is doing.

It is eminently proper, therefore, for the medical profession to take an occasional night off to consider itself in a philosophical and analytical way so that it may more fully realize just where the profession must of necessity stand in relation to all this new thought about man and the State. Considering how medicine and medical thought have more than retained their relative positions in the body of science, and that the profession is today beginning to be recognized as the most difficult, complex, and important of the professions, and is beginning to arrive at its true position in the community—it is well for all medical men to realize where the inevitable progress must of necessity lead, for great as has been the past of medicine and wonderful as are the results attained, we must realize that we are hardly on the threshold of achievement and are hardly beginning to receive the recognition which must come.

It is highly important that the profession should help the public and itself to clear up the misty ignorance regarding the principles underlying any possible science of relationship of man to man. It is well for us to stop and review what the medical profession does know that makes it imperative for it to be man engineering. From the days when he considers man and his members, while as yet there are none of them, through the mysteries of growth and development, the physician is a profoundly thoughtful student and is practically the only guide the race has. In the private adjustments of machinery to life, he is the only guide the grown individual can call on for assistance. The conception of the doctor as only a mender of old clothes and a body repair artist of human wrecks is not true to fact and never can express the medical work.

*Summary of an address before the Northeastern Branch of the Philadelphia County Medical Society.

To discuss the medical profession from former examples and from failures is far too common among the sensation mongering writers; why should we tolerate such a stand any more than we should allow a describer of apples to select for his theme only rotten ones? The facts being what they are, the medical profession being alone capable of doing certain things, it hardly needs to be debated that there rests a very large measure of responsibility on that profession to take a most active, leading, yes, dominant part in the practical work of the community—applying all the results of knowledge to the growth of the State in its complexity. The more useful knowledge any group of men possesses, the more important does that group become and the greater is its obligation rightly to use that knowledge. It little matters who paid for the development of that knowledge, and to whom we are indebted for its production; the actual acquisition and possession of such knowledge and wisdom give a personal ownership which confers definite rights on the possessor. Let the owner never forget his indebtedness, as in all ethical and moral reason he is bound to do, and let him be impelled by honor and generosity, remembering how freely he has received; but let him also remember that others have received even more freely and say less about free giving.

Never let him descend to the lower standards of the law or of pure business; he has no excuse for cheapening his possessions by allowing anyone, even for an instant, to maintain that what he has is only to be given away, even to the State. The cheapness of medical service to the State is a crying disgrace, reflecting on the judgment and good sense of the medical profession as well as on the decency of the public. It is inexcusable to pauperize the State by giving it valuable work, while it pays well for every other sort of work delivered. Even legislators find nothing unethical in taking pay.

Practically the medical profession has to enter into all those fields where the health, sanity, and sanitation of the individual or groups of persons are concerned. At present, education is little more than a heritage of medieval barbarism, and will remain so until wise medical advice is given regarding the condition and fitness of the individual child to be put under the forcing processes of the schools. Let any one go into a crowded schoolroom with a trained eye, and see how many children are undertaking tasks that are unsuitable to their condition, and he will go home a very sad man.

It is not enough to jam useless learning and destructive ambition into the child to please a silly school board. Education should be for a vastly larger purpose and on a vastly different plane, and until wise medical advisers are in every school and on every school board, "education" will fail of its proclaimed purpose and will continue to turn out its dismal wreckage.

The homes of the ignorant and poor must be looked after, so that they shall be built, in future, not for the greatest profit of the builder and salesman and unprincipled owner. The miserably ignorant architects must be compelled to plan decent places for the housing of men as they are, and with regard to the money they can pay out of their earn-

ings. The sources of poisons that pollute the air must be hunted up and the vile devices which allow leaking of coal and illuminating gas must be suppressed. The pollution of water sources, the adulteration of foods and drugs, and the reckless sale of poisons by scrupulous quacks and prescribing drug stores, must be checked.

The wholesale slaughter, and maiming, and neglect, and cultivation of disease, by contempt of sanitary measures by industrial corporations and their employees must be combated and mitigated, not by denunciation and insult, but by wise leading and instruction, so that employers will be taught that it is to their interest to do as the greatest captains of industry, or as I prefer to call such true leaders, the generals of labor, who have begun to cultivate health and happiness in their factories because they find greater efficiency results and that the whole thing pays well; and furthermore, when the State wakes up to these results obtained by the pioneer generals, there will be larger measures for the profit and development of the communities; laws will be built up with the guidance of the only man engineers available, medical men of high training and wisdom.

Laws will be made, not as now by ignorant lawyers in their own interest or for venal clients to the detriment of the public, but by men advised wisely for the public welfare, drawn in legal form if you will by lawyers, but directed by a vastly broader mentality and on a more worthy basis. The medical man has been but poorly instructed in legal medicine, and his natural feeling is too often that of repugnance to the whole field. This is unfortunate, because it too often drives him away from work that he should do.

The medical profession should fit itself to comprehend the simple principles of the law so that it will be able wisely to direct the laws. It will not be proper to monopolize this matter because there are two parties concerned, each of which has rights. Any law in which medicine is a party should not ignore either side, and when the State assumes the direct regulation of benefaction, it must not assume the same attitude that it maintains in the regulation of crime.

Unfortunately the law seems almost incapable of grasping this distinction, but then the law is so very ignorant beyond its own pedantry, that it cannot be of much real service to the State. Its financial benefits are based on a wonderfully exaggerated estimate of value, which should be a stinging lesson to the medical profession and a burning shame to the public that pays the higher medical service vastly less.

Considering how rapidly medicine has demonstrated its practical usefulness and how much recognition has recently been accorded to its achievements, it is proper that we adjust ourselves to the calls which must and will be made in the near future for service to the State. Let us remember that if we are not prepared to do the work, progress will stop, and if we do it well, we ought to receive pay for our labors, as well as recognition for the quality we put into the work that no pay can compensate for.

Let the medical profession stand together as

high class, honorable men who apply their ideals to these relations, and not only personally perform their duties, but protect these ideals—honorable men who will not permit the labors of brother workers to be belittled, snubbed, or underpaid by those who seek all the profits for themselves. The effect will react on the whole profession in a way to reward all proper effort.

Therapeutic Notes.

Treatment of Postoperative Ileus.—E. O. Kane, in *American Medicine* for July, 1914, reports having found the use of the faradic current a more satisfactory measure than any other in combating postoperative ileus. In applying the current the patient's position in bed need not be changed. Enough of the dressings must be removed, however, to afford access to such portions of the abdomen as are not implicated in the operative incision. An ordinary family faradic battery may be used. One electrode, preferably the metal plate, covered with moist gauze, is placed under the small of the back and held firmly against it with a folded towel. The other—the sponge—electrode is held by the operator, who, turning on the current gradually, passes the sponge up and down the abdominal surface. The electrode should be moved slowly and firmly, and not lifted from the skin any oftener than can be avoided, interruption of the current causing discomfort. The entire abdomen should be thus treated with the exception of the actual wound area, special attention being paid, however, to points where the bowel is apparently most distended or which suggest particular regions of obstruction. The strength of the current should be gauged according to the tolerance of the individual and the extent of contraction of the abdominal muscles produced; such contraction should not be allowed to threaten the integrity of the line of suture.

From ten to fifteen minutes of the faradic treatment are usually necessary at one sitting. At the end of that time or within the next half hour free expulsion of gas begins. In obstinate cases or where the gas reaccumulates rapidly, the procedure may be repeated as often as desired. In some instances the author found it expedient to use the battery almost continuously, no ill effects or marked inconvenience to the patient apparently being occasioned. After many years' experience the author now makes use of faradization as a routine procedure.

Use of Fetal Cartilage in the Repair of Nasal Deformity.—Bérard, Cotte, and Sargnon, in *Lyon médical* for May 3, 1914, report the case of a young man with traumatic deviation of the septum, slight flattening of the nasal bones, and a conspicuous gap in the external nasal crest below the bones. Submucous resection of the septum was done, and the fragments of tissue thus secured were implanted at the site of the depression, but complete success was not attained, owing to insufficient size of these fragments. Later, a piece of costal cartilage taken aseptically six months before from a fetus and meantime kept in Ringer's solution in the icebox

was implanted under local anesthesia. The piece of cartilage used was one cm. long and several mm. thick, and during its preparation, was handled exclusively with aseptic forceps. The site of operation was carefully disinfected with weak tincture of iodine and alcohol, and the piece of cartilage introduced in the proper situation through an incision in the mucous membrane. Two days later the patient developed fever after the first renewal of the dressings of petrolatum gauze, but the pyrexia soon after disappeared. Locally edema was noted for five days, perfect healing then taking place. Three months later the implanted cartilage was being well tolerated by the surrounding tissues. Originally somewhat too large, it had undergone partial absorption, the ultimate esthetic result being entirely satisfactory.

A New Method of Injecting Neurolytic Fluids at the Point of Emergence of the Inferior Maxillary Nerve from the Skull.—F. Bonola, in *Semaine médicale* for July 29, 1914, is credited with devising the following procedure for the injection of neurolytic agents such as alcohol at the root of the inferior maxillary nerve, in cases of severe neuralgia in which this nerve is involved. Successful results were repeatedly obtained with the procedure. The needle used is a lumbar puncture needle, with a mark 4.5 cm. from its point. The patient lies on the sound side, with the mouth closed. A line is drawn in a direction parallel to the posterior border of the ascending ramus of the jawbone and 1.5 cm. from that border. The needle is inserted through the skin at the point where this line passes over the sigmoid notch, i. e., one fingerbreadth below the zygomatic arch. Introduction of the needle is then continued at an angle of twenty-five degrees above the horizontal plane, after the skin of the cheek has been displaced upward with the index finger of the left hand. At a depth of three cm., its point encounters bone, the vault of the zygomatic fossa, formed by the squamous portion of the temporal bone and the greater wing of the sphenoid. After this the operator has merely to slip the needle in further along this oblique bony vault, preserving the general direction of the original insertion while moving the point alternately from side to side to facilitate its progress. The disposition of the bony surfaces in this locality is such that, at a depth averaging 4.5 cm., the needle cannot fail to enter the foramen ovale, through which the inferior maxillary nerve emerges from the cranium. That the foramen has been reached is recognized from the fact that the needle passes suddenly from a higher to a lower plane and comes to a standstill against a bony surface perpendicular to the course which it has been following, viz., the posterior margin of the foramen. The injection of alcohol is then made. The method is without danger because the middle meningeal artery, the internal maxillary artery, and the Eustachian tube—the important structures in the neighborhood—are protected from the needle, in the special course it follows, by ridges of bone. If the needle should be inserted too far it would either come to rest against the cartilaginous portion of the Eustachian tube or appear beneath the mucous membrane of the pharynx 1.5 cm. above the velum palati.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal
and The Medical News.*A Weekly Review of Medicine.*

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Address all communications to

A. R. ELLIOTT PUBLISHING COMPANY,

Publishers,

66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transpor-
tation through the mail as second class matter.

Cable Address, Medjour, New York.

NEW YORK, SATURDAY, MARCH 26, 1904.

HEALTH CONDITIONS IN THE PUBLIC
SCHOOLS.

In this State, under the compulsory education law, attendance at school is required during not less than eight of the most susceptible years of life, and it is reasonable that the utmost effort should be made by the authorities to safeguard the health of the hundreds of thousands of children intrusted to their care. For a long time this duty was neglected, but a better day is dawning, and although a vast amount of work remains to be done, encouraging progress is now being made. In the State of New York, exclusive of New York, Buffalo, and Rochester, this function devolves upon the department of education, which, it is gratifying to know, always endeavors to secure the cooperation of the health officials. A striking indication of the advance which is taking place in its work is the appointment for the first time in this country, some two months ago, of a State medical inspector of schools, an office the department succeeded in having created by legislative enactment. At present the crying need for improved health work is in the rural schools. Not only is the general and child mortality larger in the rural portion of the State, but the proportion among children of such physical defects as tend to hinder proper development is also greater.

This is likewise the case in the country at large, as is shown by the investigations of the committee on health problems of the National Council of Education, which was organized as the result of recommendations made by the American Medical Association at the Los Angeles meeting four years ago, and which is working in conjunction with a similar committee of the association. Various causes have been assigned for such a condition of affairs, but perhaps the matter cannot be better summed up than in the statement of Professor Thomas D. Wood, of Columbia University, chairman of the first of these committees and a member of the other, that as a rule the farmer takes more care of his farm stock and his crops than he does of his children.

In New York and Buffalo the health department is intrusted with the care of the health of the schools, while in Rochester the department of education is charged with this duty. New York enjoys the distinction of having been the first city or community in the country to employ school nurses, now such an essential element in school health work, and Rochester of having been the first to establish a free dental clinic. At present in this city there are about 8,000 public school children to each medical inspector and 4,500 children to each school nurse, and it has been possible, with the force at command, to have only one third of the children examined each year; while, according to the accepted ideal, the minimum number should be 1,500 and the maximum, 3,000. Efforts are being made by the health department to remedy this condition by means of two experiments, so far with encouraging success. One is the wider use of private physicians, without expense to the city, in the work of physical examination; the other, which was made at the suggestion of Doctor Crampton, director of physical training for the Board of Education, is the instruction of teachers in the methods of examination for contagious diseases and in the detection of gross physical defects, particularly of vision and hearing, so that children who are selected for attention may be immediately referred to the nurse or the school inspector, the latter making the diagnosis and advising appropriate care. Among the most valuable improvements of recent years are the free clinics for school children whose parents are too poor to pay for medical attendance, and lately the suggestion has been made by Doctor Richards, of the Association for Improving the Condition of the Poor, who was formerly a school inspector himself, that it would be a saving of effort and directly tend to promote efficiency in the work to have such clinics placed in the school buildings.

OUR MOST DISTINGUISHED ATHLETE.

The father of our country set us all an excellent example of physical perfection, as he did of mental clearness and moral courage. It is true that he was a member of no college team, nor was he developed by any professional trainer. Neither was Franklin, nor Jefferson, nor Lincoln, nor Napoleon, nor Beethoven, nor Brahms, nor Dickens, nor Scott, nor Titian, nor Michelangelo, nor Tennyson, nor Brownning, nor Sam Johnson, nor any of those great physical, mental, moral giants. Was it inherent *vivida vis*, or the power of mind over matter that made these athletes? How little we know, but how much we ought, from our recently acquired information about the influence of nervous activity upon the ductless glands, to take into account the effect of mental unfolding upon bodily development. The mental and moral influence of physical integrity is made much of nowadays, but the physical effects of mental and moral activity are as great or greater. Be this as it may, bodily power and balance always heighten the effectiveness of mental and moral qualities, and Washington could not have been Washington had he not been a man of such superior physique.

The athletic prowess of Washington, in his earlier days, is recorded by all his biographers, and there seems to have been no need to exaggerate his excellence in all sports of the day. He was especially fond of dancing and riding. His only requirement of a horse was that "it would go along." Possibly, had he lived in the present day, he would have owned the speediest automobile and have been the most ardent student of the tango and all the latest steps. Those were slow days before the Revolution, and Washington probably knew nothing more exciting for the heels than a gavotte. After the Revolution, Washington seems to have found dancing too frivolous a pastime, but at Mount Vernon, beside riding over his plantation each day, the sport of fox hunting remained a favorite one, and three times a week, weather permitting, the great man ate his breakfast by candle light and the hounds were in full cry by break of day.

Washington's breakfast on this and other occasions was simple, as were all his meals—a few corn cakes with a little honey sufficed. Like most great men, he was a liberal though temperate feeder, and his dinner table was well provided with substantials. He was especially fond of fish and of nuts. He was very temperate for his day in the use of wines, and was fonder of tea, of which he had many "dishes" with his meals. Rich desserts were passed on by him to his guests with the kindly remark, "that is too good for me." His supper consisted of tea and

toast or a little porridge, and he was early to bed and early to rise.

Despite his fine physique, or from the carelessness it may have engendered, he was more than once the victim of disease. He, of course, had smallpox (everybody had it then), he suffered for months on one occasion from "dysentery," and an attack of pleurisy left him with a deformity of the chest. From an early time (1754) he suffered from defective teeth or from neuralgia attributed thereto. The dentists, or tooth extractors, removed one after another, and in his later years he was obliged to resort to a set of "store teeth" made from tusks of the walrus.

His last illness would doubtless have been postponed had he been less robust and more careful of his health. A mackintosh and a pair of rubber boots, too, would have preserved him many years longer. He exposed himself at Mount Vernon on December 13th in rain and sleet, looking, according to one story, after his workmen, who ought also to have been indoors. He was "considerably wetted" and doubtless fatigued with the day's business, and before he could change his clothing he was thoroughly chilled. He became hoarse and his servant suggested that he had better have some medical treatment. "No," he replied, "you know I never take anything for a cold; let it go as it came."

In the morning the sore throat had not shown inclination to take its departure, and he had his overseer open a vein. This did not have the desired effect, and physicians were summoned. Washington had always been suspicious of the medical practice of the time, but he became a docile patient. Fearing the work of the overseer had been insufficiently thorough, the patient was "let blood" again. This and other remedies made no impression for good, and the great man passed to an untimely end.

"WORDS, WORDS, WORDS."

That scientific, and especially medical nomenclature is in an unsatisfactory condition will hardly be denied by any one who is conversant with the state of affairs. At times, efforts are made by individuals or bodies of individuals to remedy the evil. Sometimes these curative measures, though planned with the best of intentions and cautiously promulgated, fail in their beneficent purpose; and sometimes, they serve only to add to the existing confusion. The International Commission on Zoological Nomenclature has just issued the following list of names which it declares "official": *Ancylostoma*, *ascaris*, *dracunculus*, *gnathostoma*, *necator*, *strongyloides*, *trichostrongylus*,

gordius, and paragordius. Of these nine words, ascaris, necator, strongyloides, and trichostrongylus are so obviously correct, that there is no need to do more than announce that they are "official." Gordius and paragordius do not often come within the range of vision of the medical man. The same may be said of gnathostoma, though we have seen its synonym, cheiranthus, used. This leaves two words, which we are not inclined to approve as more suitable for general use than the forms they are intended to replace.

With regard to ancylostoma, we do not see that it presents any advantage over the better known ankylostoma or ankylostomum. It is derived from *ἀγκυλος*, which means crooked or curved; and the same root is found in ankyloblepharon, ankylosis, and many other words. We are well aware that the modern tendency is to Latinize words which have a Greek origin, and particularly to replace Kappa by c before the letters a and y. But this tendency is not a rule; much less is it a hard and fast rule, without exceptions. If ankylosis may be allowed to retain its present spelling, why not ankylostoma? Or, if ancylostoma is accepted, how long will it be before we have ancylosis thrust upon us? We are indeed thankful that the commission did not sanction the form agchylostoma or anchylostoma, both of which, we believe, were suggested by Dubini, about seventy years ago. But in addition to the confusion in the spelling there will be still more confusion in the pronunciation; those adhering to the old form will continue to pronounce the second syllable -ki- or -kil-; while the advocates of the new method will naturally pronounce the same syllable -si- or -sil-. Thus, with the hiding of the meaning of the word, and the confusion in spelling and in pronunciation—if the new form is adopted—we are led to believe that the loss will be far greater than the gain; besides, no reason has been vouchsafed as to why any change should be made.

Our readers will be mainly interested in learning that the old world hookworm will henceforth be "officially" known as ancylostoma, and that in the course of time (say fifty years from now) all the variants at present in use, such as ankylostoma, ankylostomum, ankylostomiasis will—perhaps—disappear from medical literature. In the meantime, students, practitioners, writers, and lexicographers will have two words to struggle with where formerly there was only one. And, let it be remembered, that words are not ears of corn or blades of grass, that our word mongers should strive to make two grow where only one grew before.

Dracunculus is etymologically connected with *δράκων*, or *draco* a dragon; *filaria* with *filum*, a thread. Whether *Filaria medinensis*—for it is

about this form in particular that the question is raised—is more like a dragon or a thread in appearance, we must leave to the zoologists to settle. For ourselves, we have never seen a dragon; and so we can pronounce no opinion on the relative suitability of these terms as judged by their derivation. But as a matter of practical utility we think that dracunculus is inferior to filaria, mainly because the latter is so well established in medical and scientific literature that the proposed change would only cause much unnecessary confusion.

THE PHYSICIAN AND MATTERS OF COMMON KNOWLEDGE.

In the *British Medical Journal* for February 20th, the editor, referring to a letter in the same number which tells of the habit in certain parts of England, of sniffing cocaine and heroine, declares that he has never before heard of such a habit. We have found similar ignorance of conditions known to every schoolboy among practitioners of supposedly wide experience. Physicians are fathers of schoolboys, and are readers of the daily journals, are they not? Why should they be the last to learn of so distressing and fatal a habit, especially when the papers have been full of information on the subject ever since the crusade began against cocaine snuffs some eight years ago? The family physician ought to be able to detect a drug user during his preliminary inspection of him as a patient, yet special instruction has to be given beginning insurance examiners on this important point. Detectives can "spot a fiend" generally on sight, and the ability ought not to be lacking in a physician of large practice, while knowledge of how habit breeding drugs are used in this neurotic age seems to belong to elementary pathology.

SALICYLIC ACID AND ANAEROBIC ORGANISMS.

P. W. Bassett-Smith, fleet surgeon in the Royal navy, writes to the *British Medical Journal* for March 6th of his experiments with equal parts of salicylic acid and boric acid. The material inoculated was a very infected sample of earth containing *Bacillus aerogenes capsulatus* and *Bacillus tetani*, and guinea-pigs were the animals experimented on. A small wound was made, and the lethal dose of the earth was rubbed in or buried in the subcutaneous tissue. The number of animals used was twenty-four; the three controls died in forty-eight hours or less from acute hemorrhagic edema; seven were treated with thirty per cent. carbolic acid paste, one only survived—this one was treated five minutes after infection, and antitetanus serum was also given; three were treated with thirty per cent. cresol, one recovered—it was treated fifteen minutes after

infection, and antitetanus serum was given; one was treated in five minutes with double cyanide paste—it died in forty-eight hours; five were treated with salicylic acid in five, fifteen, or thirty minutes, with or without antitetanus serum—all recovered; five were treated with salicylic acid powder, plus other disinfectants, in five, fifteen, or thirty minutes—all recovered.

Thus, of the twenty-four animals experimented on, all those treated with salicylic acid recovered, whether this was associated with other disinfectants or not. The three controls, and all but two of the remainder, died in from thirty-six hours to six days from either acute hemorrhagic edema or tetanus; the two that survived had been treated also with antitetanus serum. Similar satisfactory results were obtained when the infection consisted of *Bacillus pyocyaneus* and *Staphylococcus pyogenes*.

FAHRENHEIT AND CENTIGRADE.

Subscribers to the *Lancet* have recently been offering various easy methods of translating the Fahrenheit thermometer scale into the Centigrade—or, as some sticklers for historical accuracy call it, the Celsius—scale, and *vice versa*. A writer in the issue for March 6th observes that most doctors can work out the problem with a pencil and paper, and he submits some data for more speedy mental calculation. He premises that 95° F. correspond to 35° C. and 104° F. to 40° C. The two fives in the first case and the two fours in the second supply the *memoria technica*. From these it is easy to calculate all the intermediate relations, remembering that 1° C. equals 1.8° F. Thus 36° C. equal 96.8° F., 37° C. equal 98.6° F., and so on, and it is rarely necessary to work outside these nine degrees F. or five degrees C. Those with “good heads for figures” can learn them by heart. It will be seen that 37° C. is just above the 98.4° F., which is commonly regarded as the normal temperature; also that from 36° C. to 37° C. covers from 96.8° F. to 98.6° F. an interval which runs only a fifth of a degree F. above and below the daily range of temperature in health—namely, from 97° to 98.4°.

News Items.

A Ward for Drug Habitués in the Philadelphia General Hospital.—The Department of Public Health and Charities, of Philadelphia, has opened a special ward in the Philadelphia General Hospital for the treatment of drug habitués. It is the only hospital ward of this kind in Philadelphia.

Foot and Mouth Disease in Westchester County.—Many cases of foot and mouth disease have been discovered in the southern part of Westchester County, N. Y., and the entire county has been placed in quarantine. Six Federal inspectors are touring the quarantined districts, destroying all the infected cattle found. It is thought that tramps are acting as carriers.

Mosquito Extermination on Long Island.—A meeting of prominent physicians on Nassau County was held in Mineola, on March 6th, and a committee organized to fight the mosquito. The meeting was in charge of Dr. C. B. Davenport, head of the Carnegie Experiment Station at Cold Spring Harbor. He outlined the work which had been done in the way of mosquito extermination along the north shore.

Alumni Association of the Long Island College Hospital.—The next meeting of the association will be held in the large amphitheatre of the hospital on Monday, March 22d, at 8:15 p. m. The subject of the evening will be Syphilis and will be presented by Dr. H. H. Morton, Dr. Frederick Tilney, Dr. Alfred Potter, and Dr. J. Sturdivant Read. The Committee on Clinics of the association is composed of Dr. J. C. Rushmore, Dr. Richard E. Shaw, Dr. Burr B. Mosher, and Dr. S. J. McNama.

A State Conference on Insanity.—The first State Conference and exhibit on Mental Hygiene, dealing in general with the care and prevention of insanity, will be held in Albany on March 23d, 24th, and 25th, under the auspices of the State Charities Aid Association. Motion pictures of the State hospitals will be shown. Some of the speakers will be Dr. Henry Smith Williams, Dr. C. Macfie Campbell, Dr. August Hoch, Dr. James V. May, Dr. William A. White, Dr. William L. Russell, and Dr. George H. Kirby.

New England Electrotherapeutic Association.—Dr. William D. McFee, of Haverhill, Mass., has been elected president of this association, at the annual meeting held in Boston on January 27th. Other officers were elected as follows: First vice-president, Dr. G. H. Dassler, of Portland, Me.; second vice-president, Dr. D. W. Percy, of Salem, Mass.; secretary, Dr. F. H. Morse, of Boston; treasurer, Dr. Frank A. Davis, of Boston. The paper of the evening was read by Dr. Frank E. Peckham, of Providence, R. I.

Personal.—Brigadier General William C. Gorgas, surgeon general of the United States Army, has been made a major general in the medical department.

Dr. Saul Schlegman, of White Plains, has been appointed visiting physician to the Loeb Convalescent Home, East View, New York.

Dr. Arthur S. Unger, of 162 West Eighty-fifth Street, has been placed in charge of the Röntgen ray department of the French Hospital, New York.

The Stillwell Bill Again.—For the last four years a bill has been introduced annually in the legislature of the State of New York, requiring every person who wished to be cared for in any hospital or sanatorium to lay before the superintendent of the poor a statement of the family history and resources. The bill has been opposed by the State Charities Aid Association and has always been defeated. This year the bill has been introduced by Senator George F. Thompson, of Niagara County, and has been referred to the judiciary committee.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, March 22d, Section in General Medicine of the College of Physicians, North Branch of the County Medical Society; Tuesday, March 23d, West Philadelphia Medical Association; Wednesday, March 24th, County Medical Society; Thursday, March 25th, Pathological Society, Northwest Branch of the County Medical Society; Friday, March 26th, Neurological Society, Northern Medical Association, South Branch of the County Medical Society, Medical Club (directors).

Vacancies for Volunteer Clinic Physicians.—There are at present a few vacancies for volunteer assistant attending physicians in the tuberculosis clinics of the department of health in the boroughs of Brooklyn and Queens. No salary is attached to these positions. Those holding them, however, are usually selected to fill the salaried positions in the clinics, when vacancies arise. Physicians desiring these positions should communicate at once in writing to Dr. B. H. Waters, chief of the Division of Tuberculosis, Bureau of Infectious Diseases, Department of Health, 139 Centre Street, New York.

Doctor Goldwater Tenders Resignation as Health Commissioner.—Dr. S. S. Goldwater, who has been commissioner of health of the city of New York since January 1, 1914, received leave of absence from his duties as superintendent of Mount Sinai Hospital in order to accept the appointment as commissioner. That leave has expired and he has given notice that he wishes to be relieved from his duties so that he can return to Mount Sinai Hospital. The trustees of that institution purpose the erection of a million dollar annex and wish to have this built under Doctor Goldwater's direction. It is reported that the Mayor is much averse to parting with Doctor Goldwater; he has not yet accepted the resignation.

Medical Society of the Missouri Valley.—The spring meeting of this society will be held in Omaha, Neb., on Thursday and Friday, March 25th and 26th, under the presidency of Dr. Granville N. Ryan, of Des Moines. An excellent program has been prepared, and the meeting gives promise of being of unusual interest. Dr. Frederick H. Albee, of New York, will deliver the oration in surgery, his subject being *The Future of the Bone Graft*. The oration in medicine will be given by Dr. Charles Spencer Williamson, of Chicago, on *An Experimental Study of Cardiac Overstrain*.

Low Death Rate Continues in New York.—Figures supplied by Dr. William H. Guilfooy, registrar of the Department of Health of the City of New York, show that the past week in New York city was most healthful. The great decrease in the mortality of the week ending March 6, 1915, continued during the past week, although not to as large a degree.

A comparison of the figures for the past week with the corresponding week of 1914, reveals a considerably decreased mortality for nearly all causes of death with the exception of the degenerative diseases, organic heart and kidney diseases, in which the death rate was approximately the same. The death rate was 1.33 point lower, which corresponded to a relative decrease of 151 deaths.

Public Health Work of the Academy of Medicine.—The Public Health Committee of the New York Academy of Medicine, of which Dr. Charles L. Dana is chairman and Dr. James Alexander Miller secretary, has published a summary of its activities during January and February. This report contains a statement of what has been accomplished by the committee in regard to the following matters of public interest: Teacher mothers in public schools; the children's pavilion at the Metropolitan Hospital, where it is suggested to transfer mentally normal children from Randall's Island; the question of the desirability of transferring quarantine from the State to Federal control; the relation of seating and lighting facilities in school rooms to the incidence of myopia among school children; the position of the Academy of Medicine regarding the abolition of the office of coroner; the bill recently introduced in the Legislature amending the public health law in relation to vaccination.

American Posture League.—The second annual luncheon of this league was held at the Hotel Astor, New York, on Saturday, March 13th, Miss Jessie H. Bancroft, founder of the league, presiding. Last year's luncheon was exclusively for the honorary boards of the league, but this year invitations had been extended to the general members and to others interested in the work of the league, including physicians, educators, and efficiency experts. The Central Committee on Public Health Organizations, which met in New York on the same day, also attended the luncheon. The after luncheon program included addresses by Miss Bancroft, who spoke on the History, Plan, and Work of the American Posture League, Dr. Frederick H. Green, of Chicago, Dr. Joel E. Goldthwait and Dr. E. G. Brackett, of Boston, Dr. Eliza Mosher, Dr. Henry Ling Taylor, and Dr. S. Josephine Baker, of New York. Dr. Percy W. Roberts, of New York, presented a report of the original research work on the part of the league, and Dr. Anna L. Brown told of the national contest on posture conducted by the league.

The Week's Contributions to the Belgian Relief Fund.—During the week ending March 13, 1915, the following contributions were received by the treasurer of the Committee of American Physicians for the Aid of the Belgian Profession: Dr. Frank Slopanskey, Helper, Utah, \$5; McKees Rocks Medical Society, McKees Rocks, Pa., \$6.50; Dr. James M. Anders, Philadelphia, \$15; Dr. Charles M. Green, Boston, \$25; Dr. J. M. Miller, Hickory, Pa., \$5; Dr. John Woodman, New York, \$10; Dr. R. L. Bradley, Roswell, New Mexico, \$5; Dr. Everett D. Peck, Thompson Falls, Mont., \$25; Dr. Charles L. Minor, Asheville, N. C., \$15; J. M. H., Fort Logan H. Roots, Arkansas, \$5; Dr. Fred E. Thompson, Detroit, Mich., \$25; Dr. Alfred H. Tickell, Nevada City, Cal., \$2; Dr. Z. H. McClanahan, Colorado Springs, Colo., \$5; Dr. C. Dunbar Roy, Atlanta, Ga., \$5; Hempstead Academy of Medicine, Portsmouth, Ohio, \$10; Dr. Halsey Beach Loder, Boston, \$5; Dr. and Mrs. James R. Judd, Honolulu, \$25; Dr. Hugh T. Patrick, Chicago, \$25; total, \$218.50.

Typhus Fever in Serbia.—It is reported that typhus fever is raging in Serbia, and that hospitals everywhere are filled with victims of the disease. The situation is very grave, as so many physicians are serving at the front, and the supplies of medicines and hospital supplies are limited. Two American physicians have died of the disease, and nine out of twelve American nurses have been stricken down. The American Red Cross and the Rockefeller Foundation are planning to send a commission to Serbia to study typhus fever and cholera. Dr. Allen J. McLaughlin, State Health Commissioner of Massachusetts, formerly an officer in the United States Public Health Service, was asked to act as administrative head of this commission, but declined on the ground that he wished to complete work which he had undertaken in Massachusetts. It is possible that Dr. Richard P. Strong, professor of tropical medicine at Harvard Medical School, will go.

East New York Medical Society.—At the annual meeting of this society, held in January, the following officers were elected: President, Dr. Mark Gordon; vice-president, Dr. Leo S. Schwartz; corresponding secretary, Dr. Joseph B. Kanter; recording secretary, Dr. Meyer Lipman; treasurer, Dr. Louis Harris. The executive committee consists of the officers ex officio, Dr. A. Z. Wolodarsky, Dr. Simon Frucht, Dr. A. Koplowitz, and Dr. Harry Apfel; membership committee, Doctor Wolodarsky, Dr. D. Zuckerman, Dr. B. Stoloff, Dr. M. Liebert, and Dr. J. Halperin; committee on ethics, Dr. S. Frucht, Dr. W. Tulchinsky, Dr. I. Teplitz, Dr. Joseph Krinsky, and Dr. B. G. Gerzog; committee on entertainment, Dr. A. Koplowitz, Dr. Ch. Colomkin, and Dr. D. Joseph; trustees, Dr. Harry Apfel, Dr. I. Kaufman, and Dr. A. Mandelbaum.

Civil Service Examinations.—On Saturday, April 3d, the New York State Civil Service Commission will hold an examination for the purpose of obtaining a list of persons eligible to fill the position of assistant attending surgeon at the New York State Hospital for the Care of Crippled and Deformed Children, West Haverstraw. The salary attached to the position is \$800 a year, and attendance at the hospital twice a week is required.

The United States Civil Service Commission announces an examination for mine surgeon, on April 20th, open to men only, from which to obtain a list of eligible persons to fill a vacancy in this position in the Bureau of Mines, Pittsburgh, Pa., at a salary ranging from \$2,400 to \$2,700 a year, and vacancies as they may occur in positions requiring similar qualifications. The duties of the person appointed will include traveling with the Bureau of Mines' rescue cars, making physical examinations of all applicants for first aid and mine rescue training and examining the sanitary and hygienic conditions in and about mines and mining villages with a view of determining the effect of such conditions on the health and physical well being of those engaged therein. Graduation from a medical school of recognized standing, and at least two years' medical and surgical experience with industrial workers, are prerequisites for consideration for this position.

The Work of the State Department of Health.—Dr. Hermann M. Biggs, State Commissioner of Health, has transmitted to Governor Whitman the thirty-fifth annual report of the department, accompanied by a letter in which he says that the State can save many thousand lives annually and materially reduce the death rate, provided that the legislature will provide the necessary funds, but if the health department appropriation is cut down, as has been suggested, it will be impossible to continue the campaign of public health education, which has resulted, not only in saving lives, but in preventing many cases of serious illness, with all the economic loss involved. Doctor Biggs calls attention to the fact that the education of the public to the risks of neglect and the advantages of healthful living is necessarily a slow process, and for its successful accomplishment by the sanitary authorities, adequate funds, broad powers, and an efficient organization are required. As evidence of what can be accomplished Doctor Biggs referred to the results of efficient health work in New York city, where 50,000 lives a year are saved by health measures. Increased appropriations have been asked for to carry on the department's campaign of education, to extend laboratory facilities for the diagnosis and treatment of disease, to safeguard the people against preventable diseases, and to postpone the approach of those diseases which are unavoidable.

HEMADENOLOGY:* A NEW SPECIALTY.

THE INTERNAL SECRETIONS—THEIR FUNCTIONS AND BEARING ON DISEASE AND THERAPEUTICS.

BY CHARLES E. DE M. SAJOUS, M.D., LL.D.,

Philadelphia.

(Third Communication.)

THE THYMUS (Continued).

In the preceding communication, evidence was adduced to the effect that the thymus might not cease completely to function at puberty, as is generally taught, and that it was deeply concerned with metabolism as regards the role of phosphorus in the process. The latter conclusion was based on the evident influence of the gland on the development of the skeleton, central nervous system, and the body at large—and also on the etiological connection between the thymus and various disorders of these structures. After showing that the organ was rich in nucleins containing a large percentage of phosphorus, and that it did not produce an internal secretion, I advanced the view that the thymic nucleins were distributed to the tissues through the agency of lymphocytes. What evidence have we to this effect?

As is well known, the thymus is composed of lobules varying in size from that of a millet seed to that of a small pea. Each lobule in turn is subdivided into small follicles (varying from one to two mm.), which constitute the functional structure of the gland. Each follicle is composed of two portions, the medullary and cortical. In the former, mainly composed of coarse reticulum, the cells, including the Hassall corpuscles, are relatively few. The important portion of the follicle in the present connection is the external or cortical.

The bulk of evidence at the present time favors the view of Stöhr, Weidenreich (1), and others, that the cortical portion of the thymic follicle is of epithelial origin and the source of lymphocytes, i. e., small leucocytes containing a round nucleus which fills them almost completely. The earliest evidence that these cells are formed in the organ appears in the course of the third fetal month, when there appear numerous readily stained nuclei, those of the small thymic cells. The histological studies of Flemming, Prénant, and others have shown that these small cells multiply by caryocinesis in the most peripheral part of the cortical portion and ultimately become lymphocytes. In certain lower forms, Teleosts for instance, the process of development of these cells may readily be traced, as shown by Maximow in 1912 and Fulci in 1913 (2). The thymus contains other cellular elements, but as recently emphasized by Dustin (3), these structures, the myoid, epithelioid, and granular cells, and also the Hassall corpuscles, are nontypical, inconstant, and auxiliary as to function. The only cellular elements which are constantly present in the thymus are the characteristic small "thymic cells" which become the lymphocytes.

Modern researches are believed, by most writers, to show that the older view of Kölliker based on histological studies, and more recently revamped by Beard, to the effect that the thymus was the original source of lymphocytes and leucocytes, which according to these investigators arose from the thymus epithelial cells, was erroneous. In the light of my own views, the only flaw in the teaching of Kölliker and Beard is that they attributed to the thymus the power of generating *all* leucocytes. The thymus contributes only lymphocytes to the general asset.

That the thymus only *adds* lymphocytes to those produced by other structures is shown by the fact that in conditions in which lymphocytosis of thymic origin is met by thymectomy, all lymphocytes do not disappear from the blood, the proportion of these cells falling to normal. Or, the percentage may decline to a certain figure; in a case reported by Schuhmacher and Roth (4), for example, the lymphocytosis of a case of Graves's disease went down gradually after the operation from forty-six to thirty-four per cent., but remained there. In another case, one of thymic hypertrophy mentioned by Klose, Lampé, and Liesegang (5), the decline was from sixty-eight to thirty-seven per cent. after removal of the organ. The two latter investigators found, moreover, that diminution of the number of lymphocytes occurred after thymectomy in normal animals, thus showing clearly that the thymus contributed its typical cells to the circulation.

My own view that *the lymphocytes are specific as to function* is based on histological, biochemical, physiological, and clinical facts. Modern investigations are showing increasingly that the former belief that the human thymus was a lymphoid organ, i. e., one similar in structure to the lymph glands, was unwarranted, and that it is an epithelial organ. We are thus brought to realize that the thymic lymphocytes are produced in a special manner, i. e., as previously stated, by epithelial cells. Chemically, as shown by Herlitzka and Borroino (6), the thymic nucleohistones differ from similar bodies of other organs; they possess no glycolytic power and are unable to destroy glycogen. Bang (7), moreover, found that the small thymic cells which develop into the so called lymphocytes have a different reaction from those derived from other structures, the spleen, bone marrow, and bones. "That the thymus cells are not identical with those of the lymph glands," writes Biedl (8), "is proved by the fact that the amount of the nucleinates, the substances which are characteristic of the nuclear structure of the true glands, is at least five times as large¹ in the thymus as in the lymph glands."

From the standpoint of physiology, it is almost superfluous to urge that the functions of the thymus

*Hemadenology, from the Greek: αἷμα, blood, ἀδὴν, gland, λόγος, discourse, meaning thereby (as do ophthalmology, laryngology, and other terms applied to specialties) the aggregate of our knowledge on the ductless or blood glands.

¹The italics are my own. S.

as illustrated by experimental thymectomy bear no resemblance to those attributed to lymph glands. The influence of the thymus, as illustrated by this operation in animals, on the development of the osseous system, the brain, assimilation, etc., previously outlined in these columns, has no counterpart in the functions of the lymph glands. The latter, acting as filters of the lymph which passes through them, to rid it of bacteria, cell detritus, tumor cells, etc., serve to destroy these harmful substances, even though often destroyed themselves in the course of their protective role, as in syphilitic bubo, bubonic plague, tuberculous adenitis, etc. All these processes have nothing in common with those witnessed in the thymus. The clinic confirms physiological teachings, the bone deformities, rickets, idiocy, and other disorders due to thymic inadequacy being in no way connected pathogenically with, or resembling disorders of the lymphatic glands.

Another feature which suggests that the thymic lymphocytes carry on an autonomous or specific function, is the adaptation of its main activity to a temporary period, i. e., that during which the body is developed, and also as long thereafter as it requires an excess of nucleins. Hence the extraordinary wealth of the thymus in nucleinates. As is well known, the phosphorus laden nuclear materials are essential in the composition of the nucleus of every cell, the dynamic initiator as it were—with the oxygen carried also by a blood cell to all tissues—of all processes considered particularly vital. Indeed, we are dealing here with a fundamental process, concerning not only vital phenomena, but also heredity. As emphasized by Kossel (9), it is the nuclein, the chromogenic portion of the nucleins, which initiates cell division, and according to present knowledge, hereditary characteristics.

The constructive power of the thymic cell is well shown by its influence on bone growth. While thymectomy soon after birth is followed by defective growth and deformities, thymus administered early restores normal development. Indeed, Gudernatsch (10) found that this substance fed to tadpoles prolonged their early growth markedly, the animals becoming unduly large, though metamorphosis, the evolution of limbs, etc., was delayed. R. Webb Wilcox (11) obtained a gain in height of nine and a quarter inches in an undersized boy also by the use of thymus gland. The delay in the development of the brain, illustrated by the idiocy of thymectomized animals and of children with small or no thymus gland, indicates its constructive influence on the central nervous system. The genital organs are influenced in the same way. Thymectomy causes loss of sexual instinct and sterility and defective development of the organs of reproduction. The use of thymus counteracts this effect. Kerley and Beebe (12) in a case of retarded development, obtained enlargement of the sexual organs with growth of hair on the pubis and axilla. In rabbits and guineapigs, as shown by Soederlund and Backmann (13), the thymus attains its greatest weight while spermatogenesis is being prepared, and it is only when the sexual organs are developed that atrophy of the gland begins. The bearing of this asserts itself when we recall that, as illustrated by

Kossel's labors, one of the chief sources of material for the study of nucleins has been the heads of spermatozoa of various animals. Spermatogenesis continuing, under normal conditions, throughout life, we are brought to realize that, as is the case with the bones, the brain and nervous system, the genital system and, in fact, the body at large, the thymic lymphocytes are specific mainly in the sense that they are *abnormally rich in nucleus building materials*. Their role is to add to the body during its evolution to puberty, or later, if need be, the excess of nucleins required for this purpose.

Summarized, these facts tend to substantiate the following definition of the function of the thymus, similar in its general lines to one submitted by myself in 1903 (14) before most of the confirmatory data adduced herein had been recorded:

The function of the thymus is to supply, through the agency of its lymphocytes, the excess of nucleins which the body, particularly the osseous, nervous, and genital systems, requires during its development and growth, i. e., during infancy, childhood, and adolescence, or later if need be, to construct the nuclei of its cells.

Beside being supported by the bulk of available evidence from various branches of biological science, this interpretation of the function of the thymus accounts for the many different roles that have been ascribed to this organ and which have led Howell, we have seen, to state that practically nothing is known concerning its functions. Another still darker realm must be searched for elucidative factors, however, before an approximate idea can be obtained of the diseases specific to the thymus, the stigmata they provoke, and the therapeutic uses of the organ.

It may be truthfully said that practically nothing is known concerning the diseases of the thymus *per se*. The syndromes attributed at the present time to it, apart from such diseases as syphilis, tuberculosis, etc., in which it takes part, are in most instances the result of pressure upon neighboring structures, vessels, nerves, respiratory channels, etc. *They do not, therefore, represent the functional disorders of the thymus*, though some of them present a few isolated phenomena which might be considered in that light. There are other morbid conditions, however, which, in view of the functions ascribed to the thymus in the foregoing pages, seem at least to belong to the domain of that organ, or in the pathogenesis of which the latter may play a leading part. It is only by studying these disorders that we can hope to obtain some idea of what the thymus actually means to the organism at large.

THE THYMUS IN PRECOCIOUS OLD AGE.

The term "progeria" (*πρό*, before, *γῆρας*, old age) was given by Mr. Hastings Gilford, of London (15), to a form of precocious senility occurring in children. While growth is delayed or arrested, the child rapidly lapses into old age or rather senile decay. The cause of this condition is admittedly unknown. It appears to me to belong, partly at least, to the field of the thymus.

The patient shown in Figure 1 is that of a girl of eight years and three months, whose appearance is that of a woman seventy-five years old. In this

case, recently reported by C. W. Rand, of Boston (16), the skin is extremely soft, loose, very elastic, and shows innumerable wrinkles, that of the face being fair, but freckled. The subcutaneous tissue

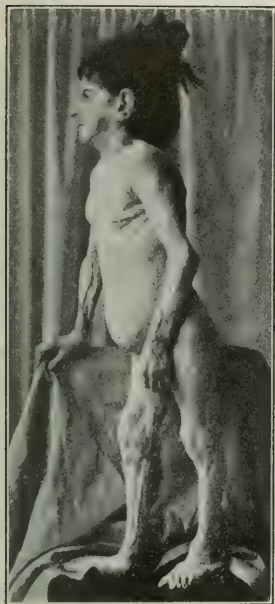


FIG. 1.—Precocious old age (progeria). Girl 8 years and 3 months old. (C. W. Rand, *Boston Med. and Surg. Jour.*, July 10, 1914.)

over the entire body is almost completely atrophied, the breasts being of the senile type. This does not apply to external genitalia, though these are infantile. There is a blue network of veins under the skin of the entire body, the large superficial veins standing out with great prominence. There is also some cyanosis about the inner canthi. The arteries are tortuous, the radials extraordinarily so. Although the heart is not enlarged, the sounds are loud. The child tires easily. Though no evidence of rickets is present, there is congenital dislocation of the hips, with waddling gait, marked relative dorsal cyphosis, and pes planus due to laxity of the tarsal muscles. The hair of the head is abundant, very dark, and shows no gray, but there is no hair over the entire body. The eyes are straight—not Mongolian—and the ears are very large. Her mentality, ascertained by the Binet-Simon method, is about that of a child one year her junior, but having been deprived of all school advantages and her environment—Russian Jews of a low class—being such as to inhibit intellectual development, the child can fairly be regarded as normal, even though pensive and “peering into books and investigating new objects with interest.” The thyroid is not enlarged; the sella turcica (which appears small), the peduncular region, and the pineal gland show no abnormal shadows. Nor does the thymic region show a radiographic shadow, or give dullness under percussion.

Examined with due care, this case reveals no features which recall phenomena met with in our study of the functions of the thymus, excepting, perhaps, the congenital dislocation of both hips (which I have found associated with thymic enlargement), the laxity of the tarsal muscles, and the asthenia. A close analysis of other cases, however, reveals stigmata which not only suggest that the thymus plays an important part in the pathogenesis of precocious senility, but also that Rand's case is

one in which the characteristic stigmata have not as yet appeared.

The second case shown in Fig. 2 is one reported by Mr. Hastings Gilford (15). The family history contains nothing of relevant interest other than that one of the patient's sisters had been rachitic—a condition, we have seen, has been observed after thymectomy in animals. Though virtually normal up to the first six months, when he began to cut his teeth, he then began to lose flesh, his nails shrivelled and his hair fell gradually until one year later, more than half of it had gone. This is another condition noted after thymectomy. Tarrelli (17), for example, found that the hair of dogs became rough and fell out easily after this experimental procedure. They also grew less than their controls—another condition corresponding with the dwarfed stature of the patient in question. At seven years, while a lively, good tempered child, he was “so easily fatigued that he could never run about with other children”—the counterpart of the postoperative asthenia observed in animals and which is so prominent a feature in infantile marasmus, a disorder in which, as urged by Ruhrah, Thompson, Dudgeon, Rohrer, Bovaird, and others, the thymus plays a prominent part. Attacks of dyspnea, also observed in thymic hypertrophy, likewise occurred; at night the breathing was very uneasy and sufficiently noisy to evoke fear lest he suffocate. The deficient bone formation witnessed in thymectomized animals was also present here; at a little over fourteen, he was only 1.04 metre high, the size of a child of five, though looking like a wizened



FIG. 2.—Precocious old age (progeria). Boy of 15 years and 6 months old. (Hastings Gilford, *Practitioner*, August, 1903.)

old man. The long bones were very thin, though the ends were relatively thick and deformed. The teeth were few in number and several of these were decayed. At seventeen, he had grown a little, being then 1.13 metre high, but he had aged rapidly and his features had become manifestly more shrivelled. In the course of a gastrointestinal disorder, with diarrhea, he was found one day "slightly livid and sitting up in bed with his eyes and mouth open, trying to get breath" and died quietly in a few minutes.

(To be continued.)

Pith of Current Literature.

WIENER KLINISCHE WOCHENSCHRIFT.

January 11, 1915.

Hyperthyroidism from the Standpoint of Military Medicine, by Max Kahane.—Hyperthyroidism is seen very frequently in the military service age, the young and middle aged adults. From the standpoint of military medicine it is important to know whether the pathogenesis of hyperthyroidism is influenced by the hardships that have to be endured during war. In other words, whether it is possible to produce hyperthyroidism in healthy soldiers; whether a latent disposition can become manifest; or a preexisting hyperthyroidism is influenced. In all likelihood a latent hyperthyroidism can become manifest and an existing hyperthyroidism become worse as the hardships that have to be endured during war are practically directly opposed to the factors which act beneficially in the treatment of this condition. Hyperthyroidism on account of its symptoms interferes with a soldier's ability to perform his duty, and it is of great importance to diagnose this condition, and, if it exists, to what degree. This can be accomplished by means of galvanopalpation in which a positive diagnosis can be made when galvanohyperesthesia and a high degree of reaction of the bloodvessels is obtained. Of further importance is the treatment which consists in rest of both body and mind, vegetable diet, galvanization of the thyroid and the neighboring nerve trunks, and the administration of phosphates.

Infected Gunshot Wounds of Bloodvessels, by Hans Heyrovsky.—In making the diagnosis of a gunshot wound of a vessel the most dependable symptom is supposed to be a murmur which is heard shortly after the injury in the region of the wound. The three great dangers in gunshot wounds of bloodvessels, exclusive of primary hemorrhage, are secondary hemorrhage, gangrene and infection with consequent hemorrhage. Primary gangrene, following gunshot wounds of vessels is seen mostly in lesions of the popliteal artery. Gangrene in these cases is almost always of the moist variety. In wounds of the vessels associated with aneurysm the hemorrhage occurs mostly in the third week; in those not associated with aneurysm, in the second week. In ligating for secondary hemorrhage, the ligation is performed at the site of injury, not at the site of election as formerly. The best method of ligation has been found to be the following: The injured vessel is exposed into healthy tissue and is ligated there, the portion of the vessel in-

cluded in the ligatures is excised together with its branches; the vessel should not be exposed further than the points of ligation. The wound is allowed to remain open, neither suture nor tampon being used. Following out this plan the authors did not have to perform a single amputation nor did a fatality occur in the cases of noninfected gunshot wounds of the vessels observed by them. Of twenty-one infected cases three ended fatally as the result of ascending thrombosis and five were cured only after amputation. The mortality of all the cases of secondary hemorrhage coming under their care was 14.2 per cent., compared to 81.4 per cent. observed by Billroth in 1870.

Febru. 18, 1905

Tetanus, by Hermann Hinterstoisser.—Two forms are recognised, the early form and the late form, depending on the period of incubation. Cases developing in from three to ten days belong to the former group; the prognosis is grave. The treatment may be divided into local, symptomatic, with antitoxin. The method of Phelps has been employed locally. It consists in swabbing the wound with concentrated solution of carbolic acid followed immediately by a thorough washing of the wound with alcohol to prevent the spread of the action of the carbolic. Peroxide is of great value, as the tetanus bacillus is an anaerobe. Iodoform solution, one tenth per cent. to one half per cent., has also been employed as an antiseptic. Salvarsan 0.3 gram intravenously, in combination with antitoxin, has been introduced of late. Subcutaneous injections of two per cent. to three per cent. carbolic solution, five c. c. at a dose, beginning with two injections daily and increasing to five or six injections daily, have also been used. Tetanus antitoxin is used in the dose of twenty units as a prophylactic injection. Of the various methods in which it has been used—subcutaneous, intramuscular, intravenous, intraneural, intracerebral and intraspinal—the last has been given preference. The technic is simple. The amount of cerebrospinal fluid withdrawn should equal the amount of antitoxin injected. The initial dose is 100 units; it is repeated daily until improvement is noted. Symptomatically, chloral hydrate in large doses—five to ten grams per diem, given per rectum,—in combination with morphine, 0.02 gram every two hours, has given the best results. Scopolamine and morphine in combination have also been used. Magnesium sulphate has been employed in fifteen per cent. to twenty-five per cent. solution intraspinally and twenty-five per cent. solution subcutaneously. Surgically, the cutting or resection of nerves is to be considered; also tracheotomy in spasm of the glottis. Lately, division of both phrenic nerves has been undertaken for spasm of the diaphragm and the patient recovered.

Treatment of Fractures of the Lower Extremity, by Guido Engelmann.—Numerous devices to act as temporary splints have been contrived; they all fail to make extension. The author has made an extension splint which can be applied on the battlefield and which overcomes this difficulty. It consists of two side bars which can be made shorter or longer by means of screws, and at the bottom of these two side pieces, screws are attached

which fasten into the heel of the shoe. At the upper end there is a ring which fastens itself around the body. To apply it, the lower screws are fastened into the heel of the shoe, the desired extension is made, and the splint is then fastened in position by means of the set screws on the sides. The trousers are slit down the outer seam and a flap cut by making transverse cuts above and below. This flap is fastened to screws on the outer part of the extension apparatus. The object of the flap formed from the trousers is that easy access to the limb may be secured in case there is a wound which requires dressing. The splint has the further advantage that it does not interfere with the taking of x ray pictures.

Prophylactic Cholera Vaccination, by O. Buijwid and L. Arzt.—As a result of their investigations in the prophylactic vaccination against cholera, the authors conclude that it has a decidedly beneficial influence as regards the morbidity and mortality of the disease and that vaccination carried out during the so called negative phase of cholera, or in the early days of the disease—at a time when the patients do not manifest any of the clinical symptoms of cholera—shows no bad results subsequently.

PRESSE MÉDICALE.

January 21, 1915.

Exposure of the Musculospiral Nerve, by A. Gosset, J. Pascalis, and J. Charrier.—The use of an oblique incision, with exposure and inspection of the nerve in its entire course, is advocated. The incision is begun in the external bicipital groove, five fingerbreadths below the humeral epicondyle; the arm is held in such a position that the elbow points upward and the hand is near the face; the incision is carried down twelve to fifteen cm. to the salient formed by the triceps near the shoulder. The brachial aponeurosis is then incised and widely reflected, and the point of the triceps tendon, at the upper end of the wound, is located. At the outer margin of this tendon, terminates the line of cleavage between the external and long heads of the triceps; these portions of the muscle are now separated and the middle portion of the musculospiral nerve is thus exposed. Branches of the deep brachial artery require ligation. The proximal and distal portions of the nerve can be exposed by merely drawing to one side the long or external portions of the triceps, as required. In a series of cases in which this method was employed, evidence was obtained of the value of exploration of the entire nerve in cases of wounds of the arm with signs of nerve paralysis.

Treatment and Prognosis of Tetanus, by Nigay.—Of twenty-two cases of tetanus treated with chloral hydrate in doses of twenty to twenty-eight grams per diem and morphine in doses of 0.02 to 0.06 gram, only six ended favorably, while among thirteen cases in which 0.75 gram of phenol was injected daily round the wound, four were cured. Though the phenol injections did not appear effective against tetanus, they manifestly facilitated healing of severely mutilating wounds, in which amputation had seemed indicated. A short period of incubation was found directly to correspond to a poor prognosis. In cases with an incubation period less than four or five days, radical operative

measures, even amputation, are justified. Dysphagia and copious salivation were always observed to be precursors of early death.

RIFORMA MEDICA.

February 6, 1915.

Primary Sarcoma of the Stomach, by G. Di Giacomo.—The rarity of primary gastric sarcoma is as striking as the frequency of carcinoma of the stomach. Even Virchow had observed only two cases. The cases described by Di Giacomo were diagnosed clinically and macroscopically as carcinoma, whereas microscopical examination showed them to be true sarcoma of the round celled variety. A noteworthy feature was the advanced age—sixty-five years in one case. The number of cases of primary gastric sarcoma reported in the literature is 202. Of these, one hundred were round celled, thirty-nine fusiform celled, fourteen polymorphous celled, and thirty-nine of special structure, angiosarcoma, myosarcoma. The most common site is the pylorus, yet pyloric stenosis is seen in only one third of all cases.

Epileptic Myoclonus, by E. Grande.—Certain characteristics help in the diagnosis of this disease, which is not always clear. There is diffusion of the myoclonic condition over widely separated groups of muscles, also gradual onset with progressive augmentation of intensity up to the state of violence. There is headache, mental confusion, a sense of great heat in the head frequently prompting the patient to immerse the head in cold water for its relief.

Eunuchoidism, by L. Ferrannini.—In this state there is deficient development of the sexual organs, of sexual desire, and of the hair, with a tendency to either adiposity or gigantic height; there is however, no absence of the testicles. According to Ferrannini this is identically the same condition as that called genitodystrophic geroderma. Sängner considers that eunuchoidism depends not on an alteration of the genital glandular system, but on alterations of the hypophysis. There has been noted a relationship between the testicles and the hypophysis, and when the testicular condition is secondary, there is eunuchoidism with acromegaly or gigantism. When, on the other hand, the testicle is primarily affected, there is seen the pure form of eunuchoidism called by Rummo genitodystrophic geroderma.

BRITISH JOURNAL OF CHILDREN'S DISEASES.

September, 1914.

Cardiac Arrhythmia in Diphtheria, by E. P. Gunson.—The polygraph was employed to measure irregularities of the pulse in diphtheria in children under ten years of age. Sinus arrhythmia was constant with pulse rates below 100 a minute. Premature auricular contractions occurring singly and infrequently were observed—the sole irregularity in mild and moderately severe cases.

Fatal Hemoptysis in a Child Four Years Old, by J. D. Rolleston and J. E. Robertson-Ross.—The child had been admitted to the hospital with the diagnosis of whooping cough. He was ill nourished and wasted but was never heard to whoop. No area of dullness could be made out in the lungs.

The spleen could be palpated and the liver percussed slightly large. Evening temperatures between 102° and 103° F. were recorded, the temperature being normal in the morning. The pulse rate was rarely below 120, the respirations between thirty and fifty a minute. One evening about two months after admission a small amount of blood stained sputum was expectorated; on the following day a copious hemorrhage occurred, the patient dying almost immediately. The autopsy showed large tracheobronchial glands, obviously tuberculous, with caseation. Evidence of tuberculosis was found in the left pleura, both lungs, liver, spleen, kidneys, meninges and gray matter of the cerebral cortex.

Subacute Atrophy of the Liver in Childhood, by R. A. Chisolm.—This form is common in childhood. The diagnosis is difficult because the clinical picture is not striking, the symptoms and signs are uncertain in their significance. In the subacute form evidences of repair in the liver are found at autopsy, which is not the case in the acute form. Jaundice is usually the first symptom. It varies from a deep icterus to a slight yellowing of the sclera and depends upon the acuteness of the change in the liver. Ascites is present in some cases and the liver is enlarged at some period of the disease in nearly every case. Vomiting occurs occasionally and light colored stools are the rule. It is difficult to distinguish this condition from acute yellow atrophy on the one hand and from cirrhosis of the liver on the other. When ascites is present, the diagnosis of tuberculous peritonitis must also be considered, but in this condition jaundice is extremely rare. Syphilitic cirrhosis is differentiated by other symptoms of syphilis and the presence of a positive Wassermann reaction.

October, 1914.

Hyperplastic Tuberculosis of the Tunica vaginalis, by Frederick C. Pybus.—The patient, three years old, had been sent to the hospital with the diagnosis of left inguinal hernia. Soon after birth a swelling was noticed in the left side of the scrotum; the attending physician pronounced it a hydrocele. The swelling varied in size, was never painful; there were no abdominal symptoms. The left testicle was swollen; it was impossible to distinguish it from the epididymis. A diagnosis of tuberculosis of the testicle was made. Microscopical examination of the tunica showed it to consist of hyperplastic tuberculous tissue containing numerous giant cells.

Kala azar, by T. R. Whipham.—The patient, a boy aged five years, whose father had died of kala azar contracted about a year previously, was admitted to the hospital with the history that he was taken ill in Calcutta with fever and loss of appetite. He was apparently losing weight, his stools were white in color, but otherwise normal. Three months later his abdomen was noticed to be enlarging; he was now losing weight rapidly. He was very anemic with a hectic flush. The lymphatic glands were slightly enlarged and were hard and discrete. The abdomen measured twenty-four and one half inches in circumference and there was slight ascites. The liver extended three inches below the level of the costal cartilages; the anterior border of the spleen reached to the median line, a

notch being felt just above the umbilicus, the lower border filling the left iliac fossa. The red blood cells were 3,220,000, the leucocytes 2,200, polynuclears forty-six per cent., lymphocytes thirty-eight per cent., large mononuclears twelve per cent., transitionals four per cent., hemoglobin sixty-six per cent. The coagulation time of the blood was twelve minutes. The blood also showed the presence of Leishman-Donovan bodies. The temperature varied between 97.4° F. and 103.4° F., but the double daily remission was not evident. The pulse rate varied between 120 and 168, the respirations between thirty-two and sixty-eight. He was put on iron and arsenic and his weight showed fluctuations. After about a month he was put on quinine and then later on atoxyl. He continued to lose weight and died about three months after admission. Autopsy showed a large liver and spleen, the former weighing thirty-nine ounces and the latter thirty-one and a half ounces.

November, 1914.

Vaccine Treatment of Scarlet Fever, by Donald MacIntyre.—One hundred cases of scarlet fever were treated with commercial stock vaccines of streptococci; the doses were fifty million streptococci and 1,000 million staphylococci, repeated in seven days. No reaction was observed. Only children under ten years of age were injected and all were suffering either from a mild or a moderately severe attack. The results were compared with 100 control cases not vaccinated. The average time in the hospital of the vaccinated cases was nine weeks, of the nonvaccinated, nine and a half weeks. There were six cases of otorrhea among the vaccinated patients, eleven in the nonvaccinated; twenty-one cases of rhinorrhea in the vaccinated, nineteen in the nonvaccinated; there was one case of nephritis in the nonvaccinated patients. Two of the vaccinated patients had a second attack of scarlet fever; three had postsкарлатinal diphtheria, while of the nonvaccinated, four had diphtheria. Auto-genous vaccines were used in the treatment of nasal and aural discharges. Of twenty-eight patients having a nasal discharge, twenty-three were cured; five showed no improvement after eight doses; of fourteen patients with otitic discharge, eight recovered, six remaining chronic.

Status lymphaticus, by Hugh Thursfield.—Experiments on puppies have shown that when the thymus gland is extirpated early in life the animals grow more slowly, their muscles are more flabby, their bones are softer and after the fourth month they rapidly go into coma and die. The characteristic change of rickets can be seen microscopically in the bones. The diagnosis of the lymphatic state is difficult. The enlargement of the thymus is the most constant feature. There is an increased area of dullness over the manubrium sterni. The x ray is of value but it does not help to differentiate an enlarged thymus from enlarged lymphatic glands in the anterior mediastinum. Clinically unexplained attacks of dyspnea are present; also a persistently low vitality, evidenced by subnormal temperatures and intolerance of exertion. The administration of thyroid extract has helped some of these cases. Pituitrin is probably better because it has the most extraordinary effect in obviating the results of

shock, to which the fatal results of the lymphatic state may be attributed. Where the existence of this condition is suspected, an injection of pituitrin should be given before an anesthetic is administered.

BOSTON MEDICAL AND SURGICAL JOURNAL.

March 1, 1915.

Röntgen Diagnosis of Gallstones by Improved Methods, by Lewis G. Cole and Arial W. George.—Experience has shown that gallstones may be detected about twice as frequently as formerly by a special technic for making the Röntgen plates; a minutely careful study of the Röntgen plates by various methods; and a thorough intimacy with the röntgenographic appearance of gallstones. By new methods of interpretation, gallstones have been detected on plates made with the old technic and formerly diagnosed as negative.

Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma, by Torr Wagner Harmer.—Mixed toxins of streptococcus and Bacillus prodigiosus seem to be of value in certain cases of inoperable sarcoma, but the institution of this treatment is unjustifiable when operative measures of reasonable safety offer hope of removal. The treatment, whether of primary or recurrent sarcoma, must be intense, the dose and the interval between injections requiring some experience, but the method is distressing and never certain. Seventy-three cases have been regarded as apparent cures after most rigorous criticism. The small round cell type seems to offer the greatest expectation of benefit, followed closely by the spindle cell type; only a relatively small number of the mixed cell type have been benefited. The use of toxins in cases with multiple melanotic growths does not seem justifiable; it is legitimate in single melanotic growths. Over eighteen per cent. of the total number of apparent cures occurred in bone sarcomas exclusive of giant cell cases which furnish about fifteen per cent. Sarcomas of the vertebræ defy eradication, but should be attacked primarily by surgery and afterward by toxin treatment. Primary inoperable round cell sarcomas of the cervical glands composed about ten per cent. of apparent cures, sarcomas of the fascia, muscles, abdominal wall, and back, about sixteen per cent. Nine of the twelve were of spindle cell type. In a few cases the toxins produced a striking relief of pain.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

March 6, 1915.

Clinical Features of the Wassermann Reaction, by E. L. Keyes, Jr.—The Wassermann reaction is the most satisfactory laboratory test of syphilis. Some serologists think it absolutely accurate, but Keyes states that he does not feel justified in making the diagnosis of syphilis on the Wassermann reaction alone. It is not positive so often after the first five years of the disease as during them; it is far more persistently positive in the later years. Consequently, a fixed, positive reaction does not inevitably point to the prospect of grave lesions. A negative Wassermann reaction after salvarsan in the first year of the disease, does not mean that the patient is cured, or that lesions will not reappear before the reaction again becomes positive. The re-

turn of chancre, glands, eruption, and positive Wassermann reaction, a few months after control of the disease by salvarsan in its first few weeks, does not prove reinfection.

Liquid Paraffin (Liquid Petrolatum): Comparative Investigation, by W. A. Bastedo.—So far as therapeutic results are concerned, the differences between the three varieties of liquid petrolatum, the light and the heavy Russian liquid petrolatum, and American liquid petrolatum, are too slight to be of importance. Choice between the lighter and the heavier oils, between the Russian and the American, is an open one; not therapeutic difference, but refinement of the oil, is the thing. A satisfactory standard might allow the use of either Russian or American oil.

Nitrous Oxide Gas Analgesia in Obstetrics, by J. C. Webster.—Valuable as chloroform and ether are when deep anesthesia is required, they have not proved satisfactory as analgesics for women in labor. If one of these is administered in small quantities at the commencement of a strong uterine contraction, the patient does not usually inhale a sufficient amount to abolish pain, and if a sufficient amount is given, continued repetition gradually inhibits the power both of the uterus and the accessory muscles. The so called twilight sleep method has not found favor with the great majority of leading obstetrical authorities either in Europe or America, who are too well aware of the uncertain effects of the mixture of scopolamine and morphine, and of the complications which may be caused, to adopt it. In the laudatory notices of this method in the lay press, no reference has been made to the damage suits which have been brought against physicians because of various ill effects alleged to be due to twilight sleep. During the past year, in the maternity service of the Presbyterian Hospital, Chicago, nitrous oxide has been used to abolish uterine pains; the members of the staff, after careful observations, are in entire agreement as to the complete success of the method in relieving women of the sufferings of childbirth. The apparatus is that ordinarily employed by dentists, and it has been found best to use a small nasal inhaler, the mouth of the patient being uncovered. The gas bag attached to the tank is kept under low pressure and, as the pain begins, the patient is instructed to breathe quietly, keeping her mouth closed. Ordinarily, light inhalation suffices to produce the analgesic effect, and expulsive efforts are not interfered with to any appreciable extent. As soon as the uterine contraction begins to subside, the inhaler is removed, and the patient again becomes conscious. This procedure may be kept up for hours, if necessary, and a nurse or assistant may be so instructed as to carry on the administration satisfactorily. Pure nitrous oxide gas or gas with three per cent. of oxygen may be employed; the former is perhaps most universally applicable. If required, the procedure may be resorted to during the first stage of labor, though usually it is not necessary during this period. It is important that women should be educated not to regard labor as a terrible experience, akin to a surgical operation and necessitating the free use of anesthetics. The large proportion of women suffer comparatively little severe pain.

MEDICAL RECORD.

March 6, 1915.

Uterine Fibroids, Menorrhagia, and Radium, by Robert Abbe.—In uterine fibroids of the submucous and mural varieties associated with profuse and exhausting hemorrhage the immediate source of bleeding is from hypertrophied endometrium or from the vessels whose lumen can be seen to be open on the thinned out mucosa spread over the surface of a tumor bulging into the cavity of the uterus. Often thorough curettage removes the weak vessels and thus checks the hemorrhage, which sometimes does not recur; more often hysterectomy has been needed. It is therefore a great gain to find in radium so simple and powerful an agent for the control of this serious malady. Best of all is the demonstrated greater effect of its reducing power and frequent cure of the tumor itself, and it is quite probable that when the exact dose of radium, and the best method for its application can be determined, it will be found to be a uniformly curative agent for fibroid tumors. No simpler treatment can be conceived than to introduce a thin, smooth, aseptic tube containing radium into the uterine cavity, leave it there for one or two hours, and watch improvement. Many patients are reduced to grave anemia by prolonged hemorrhage, and the physician hesitates to employ the usual surgical procedure, especially when anesthesia is called for. In such types the radium treatment is a boon. Ten years' experience has demonstrated the persistence of its good effect in menorrhagia of fibroids; the uniform reduction of tumors follows the prompt and permanent arrest of hemorrhage. The author has gained increasing confidence in the use of larger doses and less frequent application, and his opinion now is that speedy and wonderful results can be obtained by using from fifty to 100 mgm. (radium element) in concentrated form in tubes placed in thin, smooth applicators, without filter, for one application of two hours. If, after two months, hemorrhage recurs, this may be repeated. The first concern is to stop bleeding. Incidental benefit comes from slow shrinkage of the tumor, and examination every six months will reveal its diminution. In some cases entire disappearance follows.

New Curative Treatment for Pneumonia, by F. E. Park.—The method referred to has been employed for a period of two years in a large number of cases of acute infectious disease, mostly of the respiratory tract, and in no instance have any untoward results been observed. Especially in pneumonia has its effect been striking. The percentage of cures so far has been 100, and reports of twelve illustrative cases of acute lobar pneumonia, all in adults, whose ages ranged from nineteen to ninety, are given. The method consists of the intravenous injection of a solution prepared as follows: In two ounces of chemically pure distilled water are dissolved fifteen grains each of sodium salicylate and soluble iron phosphate. After sterilization by heat and cooling, fifteen minims of a saturated calcium-cresote mixture are added, and the whole is passed through a small laboratory porcelain filter. An all glass syringe is used, and by means of a twenty-seven gauge needle the injection is made

very slowly under aseptic precautions, through the skin into one of the large veins of the forearm. If the needle is properly inserted into the vein there will be no pain; if pain is felt it shows that it has gone into the muscle instead, and the procedure must be instantly stopped, and a new trial made. There may be a momentary flushing of the face and occasionally a temporary nausea. The dose varies from two to five c. c., according to circumstances. The improvement begins almost immediately after an injection is given. In five of the twelve cases cited only one injection was required. In five others two were made, and in two cases, three. In one of the latter the patient was an alcoholic, and in the other a very fat and full blooded woman weighing 210 pounds.

ANNALS OF OPHTHALMOLOGY.

January, 1915.

Persistent Ring Scotoma Following Repeated and Prolonged Gazing at a Furnace Fire, by J. Herbert Claiborne.—A mechanical engineer had been experimenting for nine months burning various kinds of fuel in a furnace, and was accustomed to look at the fire through a round door. Six months after he started these experiments, he noticed a dark ring before his left eye. A ring shaped scotoma was found, not absolute, which has persisted without any change for nearly a year. No change could be seen in the fundus, and the man was in good health. Claiborne's theory is that the peripheral rays from the aperture in the furnace destroyed or impaired the visual purple, or the ganglion cells, or both, in the circummacular region.

ARCHIVES OF THE ROENTGEN RAY.

February, 1915.

Hard and Soft X Rays, by Sidney Russ.—A pastille dose (I B) is sufficient to cause erythema of the normal human skin when soft rays are used. Twice this dose causes a painful blistering, which may be the beginning of dermatitis. The hard rays, being filtered through three or four mm. of aluminum, can be given up to fifty to 100 B. If rays are filtered the amount of x ray energy absorbed by the topmost layers of the skin is about one fifth as great as when not filtered. The wave length of the soft x rays is twice that of the hard rays. This refers to the major portion of the radiation in the two cases. The term selective action when referring to rays having a particular action upon nerve cells might better be termed selective absorption, as it is really a question of absorption, as the cells are more markedly affected because of their powers of absorption.

X Ray Work at the First Western Base Hospital, by Captain C. Thurstan Holland.—The first point to be decided in cases sent to the department is the presence or absence of a foreign body, if present, its location, and whether there is a coexisting bone injury. Search should be made with a screen over a large area. Small splashes of lead are not detected on a screen and screen observations should always be confirmed by a plate. Screen examination is best made from below up and the operator should be well protected. To localize a foreign

body two plates at right angles to each other are usually sufficient. Stereoscopic radiography usually gives the position of a foreign body in relation to the bones. The Mackenzie-Davidson method in which two radiographs with a known distance of the tube from the plate are taken, the tip being shifted a known distance and reconstruction made by means of a special apparatus of the lines of the x ray stream, etc., is the most exact. The modification of this method by Hampson is the most practical, as it can be done with the screen alone. A complication often experienced is the fact that the patient does not lie in the same position for operation as he does for the taking of an x ray picture, and this at times leads to difficulty in locating the foreign body at the time of operation. For bone injuries the screen is not sufficient. A plate should always be made, as at times fragments of lead are mixed with the bone fragments and will not show unless a plate is made. Removal of fragments is not always the best plan, as a gap and, probably nonunion, may be the result. X ray work of this kind should be carried out by skilled operators and in cases where a foreign body is to be extracted it is a good plan for the surgeon to be present when the x ray examination is being made.

JOURNAL OF CUTANEOUS DISEASES.

November, 1914.

Lesions Produced by the Bite of the Black Fly, by John Hinchman Stokes.—The writer emphasizes the importance of flies as disease carriers, and the effect of flies upon animals. The fly which the author studied belongs to the *Simulium*. When the fly bites, a small flattened wheal of pale color, surrounded by a reddened zone, is produced. It is attended by itching, but both wheal and itching are gone in about an hour, to return in about twenty-four hours. The itching and the papule-like wheal come and go. The author has observed inguinal adenopathy in this affection.

External Vaccine Therapy, by Harvey Parker Towle.—Successful results are reported with this method of treatment. The bacteria are incorporated in pastes or ointments depending upon conditions. The ointment is rubbed in till the skin is dry. Among the various diseased conditions treated by the author with staphylococcic vaccine were furunculosis, sycosis, psoriasis, and dermatitis. Acne is treated with acne and staphylococcic vaccine. Tuberculous affections of the skin are treated with tuberculin ointment.

Autoserotherapy of Diseases of the Skin, by Jose S. Hilario.—Autoserum injections are valuable in diseases of the skin in which essentially the cause is hypersensitiveness of the skin to external irritants; the method is of value in those diseases of the skin which are due to disturbance of metabolism; and also where skin lesions are of nervous origin. The number of injections necessary is variable. The author treated thirteen patients; among the cases were psoriasis, urticaria, lichen planus and dermatitis herpetiformis. In psoriasis the autoserum alone is not curative; either it increases the efficiency of the chrysarobin ointment or decreases the sensitiveness of the skin to internal irritants.

January, 1915.

Germicidal Activity of Chrysarobin and Certain Other Medicaments Used in Psoriasis, by Jay F. Schamberg, John A. Kolmer, G. W. Raiziss. These writers conclude that neither chrysarobin, nor pyrogallie acid, two of the most efficient local remedies in psoriasis, have any germicidal action upon cocci either *in vitro* or *in vivo*. They do not influence suspensions of *Staphylococcus epidermidis albus* either in the test tube or in the peritoneal cavity of an animal. It would appear to the authors that the beneficial influence of the above named drugs would be either by some biochemical process, or, they may exert some influence on a parasite of peculiar sensitiveness, and as yet undiscovered. Again, drugs like phenol, formalin, and calomel, which possess marked germicidal properties are of no value in psoriasis, while chrysarobin is of marked value, again pointing to the probable biochemical theory of the beneficial action of chrysarobin. Arsenic, a drug of value in the internal treatment of psoriasis, has no germicidal activity either in the test tube or in the peritoneal cavity of an animal. Its action is probably similar to that of chrysarobin.

Primary Epithelioma of the Hand, by Howard Fox.—A teamster, aged forty-eight years, presented serpiginous, ulcerating, crusted lesions, from which a considerable amount of thick, yellow pus could be expressed. Some few portions were covered with epithelium, and the parts were swollen and tender. A biopsy disclosed the lesions to be cancerous. The laboratory diagnosis was a squamous cell carcinoma. The patient died as a result of a secondary metastasis.

February, 1915.

Cellular Elements of the Blood in Various Skin Diseases, by M. F. Engman and R. H. Davis.—The comparative absence of leucocytosis in pyogenic inflammatory skin affections is striking; it is present in only two out of eight cases of staphylococcic dermatitis. Seborrheic dermatitis showed a leucocytosis in eight out of ten cases. A most striking fact was the increase of large mononuclear leucocytes. This increase was found in many skin diseases. The exact explanation for this occurrence was not ventured by the authors. The small lymphocytes were increased in almost all the instances where the mononuclear cells were in excess. Eosinophilia is probably stimulated by the presence and often even by the extracts of animal parasites in the body. Dermatitis herpetiformis showed eosinophilia in thirteen out of twenty-seven cases; while in pemphigus there was eosinophilia in six out of eight cases. The authors studied seventy-two different skin affections.

Biochemical Properties of Chrysarobin, by Jay F. Schamberg, G. W. Raiziss, John A. Kolmer.—A study of the chemistry of chrysarobin shows that this substance contains very little chrysophanic acid and there is invariably present chrysaphanol-anthranol and its methyl ether, and in all probability emodinol. Chrysarobin acts by extracting oxygen from the tissues, probably the proteins of the skin. This action is a chemical one, and goes on just as well in an atmosphere of oxygen or of hydrogen, showing that the oxygen

of the air has no influence. The chemical union between chrysarobin and the proteins of the skin is so firm that it cannot be dissipated by boiling even with an acid. When chrysarobin is oxidized, it forms chrysophanic acid which is inert therapeutically. Alkalies increase the oxidizing powers of chrysarobin, while acids diminish it. Chrysarobin acts mainly on the horny part of the skin; some of the drug, however, is carried deep into the epidermis and even into the corium. Chrysarobin probably does good in three ways. It is a stable substance, not being oxidized by the air; it is a strongly reducing agent; and it forms a firm, chemical union with the proteins of the skin.

JOURNAL OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

January, 1915.

Nasal Conditions Causing Asthma, by William H. Dudley.—The irritation of certain definite spots within the nose has been regarded as the probable cause of asthma of a reflex nature. The area usually affected appears to be the membrane covering the posterior extremity of the inferior turbinate and septum immediately opposite, although certain observers have noticed that the upper and posterior portion of the septum is the area from which to obtain the reflex. Numerous pathological conditions within the nose producing pressure against these sensitive points in predisposed individuals have been found responsible; correction has given the desired relief. Among such causes are polypi, deflected septum, enlarged turbinates, and foreign bodies. Benefit has also followed successful treatment of various accessory sinus diseases.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held at the N. Y. Academy of Medicine, October 6, 1914.

The President, Dr. SMITH ELY JELLIFFE, in the Chair.

Double Cervical Rib Nerve Symptoms: Surgical Removal.—Dr. S. P. GOODHART and Dr. ALFRED S. TAYLOR presented a woman, thirty years old, whose history, both family and personal, was entirely negative from a neuropathological point of view. Symptoms referable to the cervical ribs dated apparently from the patient's eighth year, when she began to suffer from pains in the left shoulder, radiating down the arm; the entire left upper extremity would become paroxysmally numb. There was also a gradual development of an indefinite sense of discomfort about the left shoulder and a protrusion of the left shoulder blade, which, when pressed upon, gave rise to varying degrees of pain and numbness extending through the arm. These symptoms persisted, and in the course of a few years there was added a certain inability to use properly the left index finger, noticed particularly in playing the piano, and gradually a lack of dexterity of the left hand. During her eighteenth year she noticed that certain movements of the arm, for example, arranging her clothing which necessitated placing the arm behind her, caused flexor spasm of the muscles of the forearm and hand. At this time

there was no weakness nor wasting of the muscles. When the patient was twenty-three years old, she observed weakness in the grasp and in the finer movements of the left hand, followed by progressive atrophy of the small hand muscles, both the thenar and hypothenar surfaces being involved. Soon afterward a coldness of the left upper extremity, particularly from the elbow to the finger tips, was at times subjectively felt and could be objectively demonstrated. The patient came to Doctor Goodhart in 1904 with the diagnosis of progressive muscular atrophy. At that time his examination revealed areas of hypesthesia and hyperalgnesia irregularly distributed over the left forearm and hand. These areas varied and finally disappeared, leaving as the only sensory disturbance an area of hypesthesia for all forms of sensation in that part of the forearm and hand corresponding to the inner cord of the brachial plexus, particularly the ulnar distribution. At this time the left hand presented an appearance of the typical *main en griffe*, and some atrophy of the pectoral muscles was noted. Further physical examination revealed osseous tumors in each supraclavicular space, which were recognized as cervical ribs. The one on the left side was found two inches outside of the sternal insertion of the sternocleidomastoid, extending vertically upward two inches from the upper clavicular border. On the right side a far smaller eminence was found in about the same position. The x rays disclosed scoliosis extending from the sixth cervical to the fifth dorsal, with the convexity to the left side, and with a compensatory convexity below. Bilateral cervical ribs were seen attached to the body of the seventh cervical vertebra, articulating at their distal ends with a facet from the upper border of the first dorsal ribs. On the left side the supernumerary rib measured about one and three quarters inch; the right one about two inches in length. About 1907, the patient began to observe a weakness in the right index finger and a certain lack of dexterity in executing finer movements with the right hand; slight occasional numbness of the right thumb was also complained of. Thus, involvement of the brachial plexus on the right side developed. Within the next few months numbness of the entire right leg, and pains in the calf muscles, were experienced by the patient, and Doctor Goodhart was able to detect at times a slight but manifest weakness in the flexors of the toes of the right foot, but there were no secondary nor electrical changes. In May, 1908, the patient submitted to an operation for the removal of both false ribs, which was performed by Dr. Alfred S. Taylor. Upon exposure, it was seen that the subclavian artery crossed the first rib anteriorly and below the distal end of the cervical rib, the roots of the plexus lying over the false rib, as had previously been determined by palpation. The eighth cervical and first dorsal roots were undergoing the greatest tension and pressure. This coincided with the clinical symptoms. The relation of the structures was about the same on both sides, and the upper roots were so situated as to be but little compressed.

Immediately after the operation there was paralysis of nearly all the muscles and the sensory surfaces supplied by the plexus on both sides. In the course

of a week, motion and sensation began to return, and the improvement, though slow, was constant. About one year after the operation there was still considerable atrophy and very slight sensory changes over the inner surface of the forearm. At the present time, about six years after the operation, there was marked improvement in the muscle supply.

Spinal Hematomyelia of Hemiplegic Type.—Dr. FREDERICK TILNEY and Dr. C. L. NICHOLS, of Brooklyn, New York, presented the patient, a printer, twenty-eight years old, who was admitted to the Coney Island Hospital, June 18, 1914, with the history that shortly before admission, while diving in shallow water, his foot slipped and he fell into the water almost vertically. He did not recall whether he struck the sandy bottom on his head, neck, or back, but thought that it was on the vertex, posteriorly. He had to be dragged from the water and was found to be suffering from a complete paralysis of the right upper and lower extremities, and an awkwardness in the use of the limbs on the opposite side. There had been no loss of consciousness, and he was perfectly oriented. His head was numb and the whole body felt bruised and sore. The pain was most severe over the right shoulder, extending down the arm and forearm. There were no spasmodic movements in this area. When the patient was examined, several hours after the injury, he still complained of the sensation of having been bruised, especially over the right clavicle and upper chest. He was exceedingly sensitive from a sharply defined point at the sternoclavicular articulation outward to nearly the tip of the shoulder. The right pupil was smaller than the left: they were symmetrical and responded to light and accommodation. The right side of the neck was moved with great reluctance, and posteriorly there was a certain amount of rigidity. The right side of the chest was less mobile than the left, and the breathing sounds over the former were diminished. The heart's action was slow and regular and the sounds of good character. The pulse was of fair quality and volume. The abdomen showed no abnormalities. No reflexes could be elicited on the right side, and sensation was absent, with the exception of variable areas of response to pin prick. The field of vision was undisturbed. The fundus showed slight congestion of the nerve; the margin was not well defined, and the vessels were slightly engorged, evidencing some pressure. The hearing was affected on both sides. On examination, June 25th, one week later, the anisocoria was still more apparent, the left pupil being larger than normal and reacting promptly, while the right was smaller and sluggish. The patient was placed on a water bed for two weeks, during which time the soreness gradually cleared up and the paralysis improved. He was then permitted to sit up, supported by pillows, and to use a mattress bed. Two weeks later he was allowed to sit in a chair, and ten days after that he was able to walk. He remained in the hospital a month and a half.

On the first day after his discharge, he had an agonizing pain on the right side of the head over an area extending from the forehead along the vertex in the median line to the occiput. This persisted

for two hours, gradually increasing in severity and then diminishing slowly after the application of cold compresses. A similar attack, less severe, followed a week later. After the patient had been seated for any length of time, he became stiff in the right hip, and on rising had a dull pain extending from the lower part of the spine forward into the right groin. This symptom had been noticed irregularly, averaging once a day, since he had been permitted to sit erect in a chair at the hospital. He also complained of a similar pain extending from the cervical spine to the right shoulder. There were no urinary symptoms. The bowels had moved regularly ever since the accident. Examination now showed a flaccid paralysis of the right upper extremity and a spastic paralysis of the right lower. The tendon reflexes on this side were greater than those on the left, while the abdominal, epigastric, and cremasteric reflexes were absent. The latter were present on the left side. The Babinski was positive on the right side, and there was permanent clonus in the ankle. A peculiar circumstance in connection with the case was that in eliciting the triceps reflex on the right side, percussion on either the tendon or the muscle produced flexion of the forearm instead of extension. The radiograph showed a fracture of the sixth cervical vertebra.

Spinal Hematomyelia; Brown-Séquard Paralysis.—Doctor TILNEY and Doctor NICHOLS presented a boy of twenty years, an electrician, who was admitted to the Kings County Hospital, November 10, 1913, with the history that just previous to admission, while climbing a tree, the branch broke, and he fell a distance of about ten feet, first striking upon his buttocks on a branch below and then falling to the ground on his chest. He lay flat on his face, without losing consciousness; the fingers of both hands contracted spasmodically. None of the extremities could be moved voluntarily, and he felt as though a current of electricity had passed through him, leaving the body charged from the shoulders down. The right lower extremity seemed to contain a tremendous pressure, and a tingling sensation passed up the left leg, across the pelvis, and down the other limb. The direction did not change. Physical examination showed an apparently healthy and well developed adult, rather nervous, with a slight tremor of the hands. The pupils were equal, and reacted naturally. The pulse was regular and of good volume. The heart sounds were normal. The respiration was chiefly abdominal, the chest moving very little. The arms could be moved, though very slowly and with great difficulty. The fingers were held in a position of partial flexion, with no power either to flex or extend them. The knee jerk was absent on the right side; present on the left. The Babinski could not be elicited. The toes of the right foot were red; those of the other pale, and the surface temperature of the left lower extremity was diminished. There was an absence of the cremasteric reflex. There were marked sensory changes. There was tactile anesthesia in both lower extremities and in the trunk up to the second interspace. Pain sense was absent in the left leg and as far up as the third rib, but present over a corresponding area on the opposite half of the body, where it was apparently hyperacute. The

temperature discrimination was entirely absent on the left side to a level a little below the clavicle, but was present on the right side, although the response to heat was not as good as to cold. There were sticking pains in the right leg, and the patient felt as though there was a strap around it and another around the shoulders, each being tightened in an opposite direction. There were fibrillary tremors on the left side. Priapism was present during the examination. Catheterization showed no evidence of hematuria. One month later, the patient had slight power of flexion of the left fingers. Sensation was unchanged. The pupils reacted promptly, but were unequal. The patellar reflex on the right side was exaggerated. One week later, there was an involuntary urination. Up to that time catheterization had been necessary, but from that time on the control of the bladder was normal. The lesion in this case was located in the upper cervical region. The radiographs demonstrated no fracture nor dislocation.

NEW YORK NEUROLOGICAL SOCIETY
AND NEUROLOGICAL SECTION OF
THE NEW YORK ACADEMY OF
MEDICINE.

Combined Meeting, Held November 10, 1914.

Dr. SMITH ELY JELLIFFE, President of the Neurological Society, and Dr. I. STRAUSS, Chairman of the Neurological Section of the Academy of Medicine.

Scleroderma, with Contractions.—Dr. S. P. GOODHART presented an unmarried girl, twenty-four years old, a Hungarian Jewess, whose family and previous personal history showed nothing of interest. Her present illness began about nine years ago, when she noticed a swelling of the toes, followed by increasing stiffness of the toes and knees. About the same time she also complained of a feeling of coldness and weakness in the lower extremities, with paroxysmal attacks of whiteness of the skin of the hands, together with pain and tingling. With the disappearance of the blanching, the hands would become congested and then cyanotic. Because of increasing weakness, the hands lost in function, and flexure contractions soon appeared. These symptoms for a time increased in severity and then remained stationary. About five and a half years ago, the patient noticed pigmentation of the chest and a peculiar stiffness of the face, so that she was scarcely able to open her mouth. Some months later there was some improvement in the power of moving the knees and toes. When the weather was cold, she had noticed a numbness of the nose and tongue, but not of the lips nor ears. The legs could be separated for a distance of only about six inches at the knees, owing apparently to fixation at the hip joints. Over the feet there was a hidebound condition, but less marked than in the hands, which presented the typical appearance of a pronounced sclerodactylia. The face was distinctly masked in character, with all lines obliterated: the palpebral fissures were wide, giving a strange expression to the eyes. The margins of the lips were very narrow, and the mouth was held stiffly and always partially open, giving rise to a mummified ex-

pression. The nose was narrow and angular. The ears, which were indurated, thin, and blanched, were held rigidly down. The mucous membrane of the mouth was becoming involved, showing some induration to the touch. The scalp showed no abnormality. The mammae were fairly well developed. Trophic disturbances were well marked over the small joints of the fingers and toes. The skin showed glossiness as well as the pigmentation. Many scars were present, from previous ulcers of the fingers and toes. A few years ago, there was a slight but manifest diminution to painful stimuli from the finger tips up to the wrists: this was also true of the feet and ankles. At present, no sensory changes were found, except that there was a lack of proper appreciation of hot and cold stimuli. The interesting features in this case were the initial symptoms, which pointed strongly to Raynaud's disease; indeed, that was the original diagnosis and the one with which the patient was discharged from the Harlem Hospital. Further, the case offered a recognition of the various stages of the disease, so far as it affected the soft tissues, namely, edema, induration, and atrophy, and the characteristic cutaneous pigmentation. The restriction in the movements of the joints was by no means entirely due to the hidebound condition: there were true changes in the joints giving rise to ankylosis. The hip joints were so restricted by the intraarticular pathological process as to afford very little movement to these joints. There was doubtless rarefaction and absorption of osseous tissue in some of the larger joints, analogous to the atrophic process of the subcutaneous tissue. There had been periods of marked improvement in the condition of this patient, and for a time the administration of thyroid extract seemed to be responsible for it. The initial symptoms affecting the periphery of the extremities and suggesting Raynaud's disease, together with the dissociated sensory changes, indicated a trophoneurosis. An interesting symptom in this case was the beginning involvement of the mucous membrane of the mouth. The vaginal mucosa had not been examined. Doctor Goodhart did not believe that the pigmentation in this case was really indicative of adrenal involvement, there being no other symptom of Addison's symptom complex.

Dr. WALTER TIMME thought this condition was one of generalized connective tissue hyperplasia, of which the scleroderma was only a single manifestation. This connective tissue hyperplasia, in turn, was secondary, as a rule, to a disturbance of the sympathetic and autonomic nerve supply. In most of these cases of scleroderma they got the history of an antecedent high grade sympathicotonia, and as this increased, they began to get the tissue hyperplasia, sometimes in the muscles and joints, and occasionally in the thyroid, the hypophysis cerebri, and bloodvessels. They had an overactive sympathetic and an underactive autonomic system. In the end it probably resolved itself into a question of disturbance of the internal secretions, and from a therapeutic standpoint they had seen some benefit from the use of various internal secretions. These must be brought to bear upon the particular symptom that was in the foreground, and it required a good deal of application and patience to arrive at any re-

sult. Many of the symptoms of these patients, such as the lack of perspiration, the occasional rapid pulse, etc., went to prove the contention that the condition was due to a disturbance of balance between the sympathetic and autonomic nervous systems.

Pilous Cerebral Adiposity.—Dr. WALTER MAX KRAUS, showing a case, said that many instances of genital dystrophy associated with obesity had been described since Fröhlich first separated the syndrome from the general class of obesities, but he had not found any account of a class of cases complicated by an anomalous condition such as was presented in this case, namely, a marked increase of the body hair, accompanied by a lack of the dry skin characteristic of the classical Fröhlich syndrome. This patient of Dr. Alexander Lambert was a white man, thirty-one years old; a watchman by occupation. His father was living and an alcoholic; his mother died of nephritis after childbirth. One brother died in infancy of unknown cause; one sister was living and well. Otherwise, the family history was negative. The patient had been married since 1906. His wife had had one miscarriage and four normally born children: three of these had died in infancy, one of meningitis, the others of unknown causes. The living child was two years old and well. The patient had been accustomed to drink from five to seven glasses of beer daily up to the onset of his present illness in 1910. He smoked moderately. He gave a history of measles, chicken pox, diphtheria, and whooping cough in childhood, and some form of arthritis from the age of twenty-four years (1908) until one year ago. The soles of his feet were sore, and later the tissues about the knees became red, swollen, hot, and painful. After several of these attacks there was some limitation of motion, but one year ago, after treatment at the Metropolitan Hospital, the patient was cured. Between the ages of three and four years he fell from the fifth story of his residence to the ground, resulting in a fracture of the crown of the skull. He was unconscious for about fourteen hours and disabled for six months. From that time until the age of thirteen years he was well. Then Jacksonian epilepsy occurred from three to six times yearly, but the fits were not of sufficient severity to cause the patient either to tell his parents or to seek the aid of a physician. At the age of twenty-five years, a little over twelve years after the first attack, the attacks ceased and had not recurred. Four years ago, at the age of twenty-seven years, the patient began to grow fatter. At that time his weight was 150 pounds; in 1912 it had increased to 204 pounds; in 1913 to 263 pounds, and his weight now was 282 pounds. At about the same time, the following symptoms made their appearance: His hair began to increase over the trunk and extremities, he felt sleepy, and as time went on he would fall asleep involuntarily in addition to sleeping a good deal voluntarily. In 1910, while driving a large automobile beer truck, he fell asleep, allowing the truck to run into a saloon. This accident deprived him of his chauffeur's license. These narcoleptic attacks had continued since. The patient's appetite for food, es-

pecially meat and carbohydrates, had increased. He also complained of shortness of breath and sweated a good deal. Three and a half years ago he noticed that his penis was smaller and that shortly afterward his sexual desire grew less, until now he had none at all.

It was difficult to form any clear conception of the basic cause in this case. A fall on the head at four years of age, followed nine years later by mild Jacksonian epileptic attacks which lasted thirteen years, led one to believe that some neoplasm was present. The beginning increase in the accumulation of fat two years later, pointed to an involvement of the glandular hypophysis, with the probability that in the interval the glandular part was gradually decreasing in power until its limit of safety was overstepped, with the ensuing appearance of the Fröhlich syndrome, complicated by atypical changes in the skin and blood. The absence of any involvement of the cranial nerves or of a cranial neoplasm made it impossible to settle on any diagnosis other than hypopituitarism. A blood examination showed 6,720,000 red cells; 10,800 white cells; polymorphonuclear neutrophils, fifty-six per cent.; eosinophiles, three per cent.; transitionals, one per cent.; large lymphocytes, nineteen per cent.; small lymphocytes, eleven per cent.; large mononuclears, ten per cent.; hemoglobin, 110 per cent. (Sahli). In the urine, albumin ranged from one to six grams a day during two weeks' observation; usually about three grams; no sugar; many granular casts and a few white blood cells. As to carbohydrate tolerance, from 100 to 500 grams of dextrose were without effect in causing glycosuria; 700 grams was followed by only a trace of sugar in the urine. Blood pressure, systolic, 170 mm.; diastolic, 120 mm.; Wassermann negative.

Doctor ABRAHAMSON, Mt. Sinai Hospital, had a young woman with very similar manifestations to those in the case shown. She gave a history of amenorrhea, hyperidrosis, peculiar skin changes, and adiposity; she complained of sleepiness, and had a growth of hair on the face and body, but the urine contained sugar and showed evidences of an advanced nephritis. A blood count gave 6,100,000 red cells and 10,000 white cells, with 110 per cent. of hemoglobin. It was noteworthy that the urine constantly contained a small percentage of sugar. The sugar tolerance was being investigated. The facies looked like a typical one of polycythemia. The moist skin in this case might be attributed to the nephritis as well as the polycythemia, but was most likely a part of the pluriglandular disease. He had not seen the x ray plate.

Doctor TIMME said that the hypertrichosis in this case was quite as generally distributed as had been stated, for upon closer inspection, it could be seen that the distribution was radicular in character, and furthermore skipped the areas supplied by the cervical roots, to begin again at the dorsal level. This arrangement corresponded with the position of the cells of the superior spinal sympathetic nucleus, which was nonexistent in the cervical region of the cord, and began at about the first dorsal level. This was suggestive, therefore, of sympathetic involvement.

The Treatment of Syphilis of the Nervous System with Salvarsan in the Frankfurt and Hamburg Clinics. Dr. F. J. CONZELMANN'S paper on this subject will appear in the JOURNAL.

Dr. J. F. TERRIBERRY had under observation a man about thirty years old, with tabes, who was so much disturbed by the old time antisymphilitic treatment that all treatment was discontinued. Under this method he had remained comparatively free from symptoms during the past year, and except for a slight difficulty in locomotion, seemed to be in perfect health. They must not underestimate Nature's restorative powers.

Doctor CONZELMANN, in reply to a question, said that so many of Nonne's cases of tabes got along well without treatment aside from rest in bed, that Nonne was rather skeptical in regard to the value of the intraspinal injections in cases of tabes.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Anesthesia. By JAMES TAYLOR GWATHMEY, M.D., First President of American Association of Anesthetists, Anesthetist to the New York Skin and Cancer, St. Vincent, Red Cross, and Columbia Hospitals, and St. Bartholomew's Clinic; in Collaboration with CHARLES BASHERVILLE, Ph.D., F.C.S., Professor of Chemistry in the College of the City of New York, Member American and German Chemical Societies, etc. With 283 Illustrations in the Text. New York and London: D. Appleton & Co., 1914. Pp. xxxii-945.

The technic of anesthesia has become so diversified and the responsibilities of the anesthetist are now so thoroughly recognized, that the way had been paved for this excellent volume, which is sure of a warm welcome from the entire surgical fraternity as well as from the medical historian. The happy idea of engaging a distinguished chemist as coauthor and various specialists as contributors, has given the work the authoritative quality for which, after all, the average reader longs. It would be indeed a difficult matter to pick flaws in the work, so admirably has it been carried through. Even the work of Esdaile, overwhelmed although it was by the discovery of the properties of chloroform and ether, is accorded its tribute of praise, while the anesthetic labors of the surgeons of antiquity and of the middle ages do not pass unrecognized; the mystery of the historical gap in anesthesia is duly commented upon.

Beginning with a short history of what we may call the art and science of anesthesia, the book takes the student through the physiology of inhalation anesthesia, the use of rebreathing, nitrous oxide, ether, ethyl chloride, chloroform, and their selection for a given operation, the technic in special operations, treatment before, during, and after anesthesia, intratracheal, intravenous, oil-ether colonic, and sequestration anesthesia. Then come local and intravenous anesthesia, use in dentistry, spinal analgesia and anesthesia, electric analgesia, sleep, and resuscitation, mental influence, hypnosis, and suggestion. Final chapters take up the therapeutic uses of inhalation anesthesia, the medicolegal status of the anesthetist, a list of agents, and statistics, while three appendices discuss ethyl ether, chloroform, and oxygen respectively.

The book is largely and admirably documented throughout; we note the reproduction of our editorial article which introduced to the profession at large Gwathmey's ingenious use of perfumes to dispel nocissociation; footnotes and other references are profuse; every statement apparently is fortified with facts or evidence from many sources. The illustrations are numerous and well chosen, many of them interesting reproductions of old pictures, none of them superfluous. The style throughout is fluent and cor-

rect and the work is entertaining to a degree almost unique among textbooks, especially in English. We can congratulate the authors upon producing a book which has the unusual quality of indispensability to every student and practitioner of medicine and surgery, as necessary to his library as his volumes on anatomy and physiology; even the curious layman will probably find therein matter to interest him.

The contributors, to whom a special word of praise is due, are Dr. William Seaman Bainbridge, John W. H. Crim, Esq., Dr. Charles A. Elsberg, Dr. Horace W. Frink, Dr. W. D. Gatch, Dr. James F. Mitchell, Dr. Herrmann Prinz, Dr. Louise G. Rabinovitch, Dr. Walter S. Sutton, and Dr. James J. Walsh.

Rose and Carless's Manual of Surgery. For Students and Practitioners. Ninth Edition. Revised by ALBERT CARLESS, M.B., M.S., Lond., F.R.C.S., Professor of Surgery in, and Surgeon to, King's College Hospital, London, Formerly Examiner in Surgery to the Universities of London, Glasgow, Manchester, Liverpool, and Leeds; Consulting Surgeon to the King Edward's Memorial Hospital, Ealing; to the St. John's Hospital, Twickenham, etc. New York: William Wood & Co., 1914. Pp. xii-1408. (Price, \$6.)

Seventeen years have elapsed since the appearance of the first edition of this well known textbook of surgery. During this time eight subsequent editions have appeared to demonstrate the popularity of the work, particularly among teachers and students. It is probably the best known textbook of general surgery in the British and American medical schools. As the wants of the students were uppermost in the minds of the authors, they have succeeded admirably in their task, and there is every reason to believe that the present edition will find its way into a still larger number of medical teaching centres. The authors have succeeded in compressing into comparatively small space the ever increasing amount of material necessary for the intelligent practice of modern surgery. In order to accomplish this, unnecessary historical and bibliographical details have been omitted and the number of illustrations has been considerably curtailed. The arrangement of the subject matter conforms to the best usage, among surgical textbooks, viz., a division into general and regional surgery, the former including surgery, pathology, and bacteriology, general technic, fractures, etc., and the latter the injuries and diseases of the various organs and regions. The authors have had the advantage of contact with students for many years and have learned the art of impressing the essential facts and discarding the unessential. The present edition has been brought completely up to date without adding materially to the size of the book. A new chapter has been inserted on modern methods of treatment by heat, light, electricity, radium, etc.

Student's Manual of Gynecology. By JOHN OSBORN POLAK, M.Sc., M.D., F.A.C.S., Professor of Obstetrics and Gynecology, Long Island College Hospital; Professor of Obstetrics in the Dartmouth Medical School; Gynecologist to the Jewish Hospital, etc. Illustrated with 100 Engravings and 9 Colored Plates. Philadelphia and New York: Lea & Febiger, 1915. Pp. vi-414.

Professor Polak has succeeded quite admirably in his effort to present briefly the salient points of gynecology. Although the various topics are not discussed at length, yet the facts are clearly given and the student can acquire readily the necessary information. The material is logically arranged so as to admit of ready reference, the illustrations of the operative procedures are good, and the general makeup of the book is attractive. Although it should not take the place of the more voluminous textbooks, yet as a manual it is to be recommended.

The Intervertebral Foramen. An Atlas and Histological Description of an Intervertebral Foramen and Its Adjacent Parts. By HAROLD SWANBERG, Member American Association for the Advancement of Science. With an Introductory Note by Professor HARRIS E. SANTEE. Illustrated by 16 full page plates none of which have ever before appeared in print. Chicago: Chicago Scientific Publishing Company, 1914. Pp. 101.

The author's object in making an exhaustive study of the histology of an intervertebral foramen, was largely to determine whether compression of the nerves here is likely

to occur and whether there is ground for the theory that such compression is really the cause of a number of pathological conditions attributed to it. It has taken the author five years to complete his researches, and they are therefore of great scientific interest as well as of possible therapeutic importance. While not absolutely conclusive as regards the role played by pressure on the dorsal nerves, the investigation has brought out certain interesting facts which the author summarizes at the end of the book. For example, it has been found that fat serves as the chief protective medium for the nerve structure in the intervertebral foramen and fibrous tissue externally. He concludes that bony pressure on the nerves is rare, owing to the fact that the foramen is three times the diameter of the nerve. The book is of value to those interested in the therapeutics of the spine, and the author deserves great credit for his patient investigations in this interesting field.

Interclinical Notes.

Joseph Keppler inherits the powerful and accurate line of his famous father who used to draw for *Puck*. In *Leslie's* for March 4th he has a cartoon entitled *Take the Key Away and Let the Clock Run Down*; as the clock is the war and the key is resources supplied by the United States, this particular cartoon will likely fail of its object. Neutral nations have always had the meat for the fighters' poison, the silver lining of the cloud, as it were.

The March issue of the *Popular Science Monthly* is a Pacific coast number, edited by Harry Beal Torrey. Of special interest to physicians, probably, are *The Biological Laboratories of the Pacific Coast*, by William E. Ritter; *Extinct Faunas of the Mohave Desert*, by John C. Merriam; and *The Physiological Aspects of California for the Botanist*, by George J. Peirce. There is a photograph showing the magnificent head and face of the late John Muir.

The player does not often have a chance to "get back" at his critics; a most amusing and satisfactory article, therefore, in *Current Opinion* for March is the indictment of the New York newspaper critics for their inability to discern a new and good thing when they see it. Considerable space is given up to the drama in this entertaining issue. To interest the physician of general scientific proclivities, there is, as usual, considerable well phrased condensation of what is going on among the savants.

Ethel Villers, a girl twenty-six years old, tells of her adventures disguised as a man tramp in the *Wide World Magazine* for February. For three years she was apparently able to deceive fellow tramps, brakemen, and detectives as to her sex. She was helped probably by the fact that her outdoor life had made her muscles "as hard as whipcord," and she tells of knocking a railroad detective off a train after a struggle hand to hand. A curious part of the story lies in the personal appearance of the heroine, which, to judge by her photograph, is extremely feminine and by no means unattractive.

Meetings of Local Medical Societies.

MONDAY, March 22d.—Therapeutic Club, New York; Medical Society of the County of New York.

TUESDAY, March 23d.—New York Psychoanalytic Society; New York Dermatological Society; Metropolitan Medical Society of New York City; Buffalo Academy of Medicine (Section in Pathology); New York Medical Union; New York Otological Society; Onondaga Medical Society, New York; New York City Riverside Practitioners' Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York.

WEDNESDAY, March 24th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Society of Internal Medicine; Schenectady Academy of Medicine.

THURSDAY, March 25th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Extern Society of Seney Hospital, Brooklyn; Medical Union, Buffalo; Hospital Graduates' Club, New York; New York Physicians' Association.

FRIDAY, March 26th.—Society of New York German Physicians; New York Clinical Society; Manhattan Medical Society; Brooklyn Society of Internal Medicine; Italian Medical Society of New York.

SATURDAY, March 27th.—New York Medical and Surgical Society; West End Medical Society; Lenox Medical and Surgical Society.

Official News.

United States Public Health Service:

Official list of changes in the station and duties of commissioned and other officers of the United States Public Health Service for the seven days ending March 10, 1915:

Draper, W. F., Passed Assistant Surgeon. Granted twenty-one days' leave of absence from March 6, 1915. **Freeman, A. W.**, Epidemiologist. Directed to proceed to Washington, D. C., and report to Surgeon L. L. Lumsden, in charge of field investigations of rural sanitation, for temporary duty. **Fricks, L. D.**, Surgeon. Directed to stop at Joplin, Mo., en route to Victor, Mont., for conference with Passed Assistant Surgeon A. J. Lanza, and for perfecting plans for the conduct of sanitary studies of the zinc industry. **Grubbs, S. B.**, Surgeon. Authorized to deliver a series of six lectures on tropical diseases to the junior class of the medical department of the University of Louisville. **Guiterras, G. M.**, Surgeon. Directed to assume charge of the quarantine station at Key West, Fla., in addition to present duties. **Heiser, Victor G.**, Surgeon. Relieved from duty as Chief Quarantine Officer of the Philippine Islands, and directed to proceed to San Francisco, Cal., and report arrival; granted one year's leave of absence without pay, from March 1, 1915; relieved from duty as director of health of the Philippine Islands. **Kearney, R. A.**, Passed Assistant Surgeon. Detailed as recorder of a board of medical officers, convened to meet at the Marine Hospital, New Orleans, La., March 8, 1915, for the examination of applicants for appointment as assistant surgeon, vice Surgeon R. H. Creel, relieved. **Kerr, J. W.**, Assistant Surgeon General. Directed to represent the service at the meeting of the Central Committee on National Health Organizations at New York, N. Y., March 13, 1915. **Long, John D.**, Surgeon. Detailed as chief quarantine officer of the Philippine Islands; appointed director of health of the Philippine Islands. **Lumsden, L. L.**, Surgeon. Granted five days' leave of absence on account of sickness, from February 13, 1915. **Mathewson, H. S.**, Surgeon. Granted ten days' leave of absence, on account of sickness, from March 5, 1915. **Nydegger, J. A.**, Surgeon. Directed to proceed, by way of Jacksonville, Fla., to Manatee County, Florida, to make an investigation of the prevalence of trachoma among school children, and to make observations relative to sanitation of schools. **Stimpson, W. G.**, Assistant Surgeon General. Directed to proceed to Crisfield, Md., to inspect the operations of the service at that port. **White, J. H.**, Surgeon. Directed to report to Assistant Surgeon General A. H. Glennan, chairman of board of commissioned medical officers, for examination to determine his fitness for promotion to the grade of senior surgeon. **Williams, C. L.**, Assistant Surgeon. Relieved from further duty in the Hygienic Laboratory.

Boards Convened.

Board of commissioned medical officers convened to meet at the bureau to examine Surgeon J. H. White to determine his fitness for promotion to the grade of senior surgeon. Detail for board: Assistant Surgeon General A. H. Glennan, chairman; Surgeon J. W. Schereschewsky, member; Passed Assistant Surgeon E. A. Sweet, recorder.

Board of commissioned medical officers convened to meet at the bureau, March 9, 1915, for the examination of an employee of an executive department. Detail for board: Passed Assistant Surgeon E. A. Sweet, chairman; Passed Assistant Surgeon Robert Olesen, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending March 13, 1915:

Persons, Elbert E., Major, Medical Corps. Upon completion of his present duties will proceed to Balboa Heights, Canal Zone, and report in person to the Governor of the Canal Zone for assignment to duty. **Scott,** Thomas H., First Lieutenant, Medical Reserve Corps. Ordered to active duty with station at Fort Morgan, Alabama. **Van Kirk,** Harry H., First Lieutenant, Medical Corps. Ordered to proceed to Benicia Arsenal, California, for temporary duty until the arrival of First Lieutenant George P. Stallman, Medical Corps, when he will return to his proper station.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy from February 12 to March 13, 1915:

Butts, Heber, Passed Assistant Surgeon. Detached from the *Monterey* and ordered home to await orders, via April transport. **Cole,** H. W., Passed Assistant Surgeon. Detached from the *San Diego* and ordered to the *Colorado*. **Curl,** J. C., Passed Assistant Surgeon. Detached from the *West-Virginia* and ordered to the *Maryland*. **Jones,** R. F., Assistant Surgeon. Detached from the Naval Hospital, Canacao, P. I., and ordered home to await orders. **Laning,** R. H., Assistant Surgeon. Detached from the *Saratoga* and ordered home to await orders, via April 15th transport. **Lawrence,** H. F., Passed Assistant Surgeon. Detached from duty at the hospital at Newport, R. I., and ordered to the New York Hospital. **Ledbetter,** P. B., Assistant Surgeon. Detached from the Naval Station, Olongapo, P. I., and ordered home to await orders, via March 15th transport. **Manchester,** J. D., Surgeon. Detached from the *Maryland* and ordered home to await orders. **Parham,** J. C., Passed Assistant Surgeon. Commissioned a passed assistant surgeon from July 7, 1914; detached from the *St. Louis*, April 1, 1915, and ordered home to await orders. **Ryder,** C. E., Surgeon. Detached from the *Cincinnati* and ordered home to await orders, via March 15th transport. **Stevens,** W. E., Assistant Surgeon. Commissioned an assistant surgeon from January 23, 1915. **Wu Wedekind,** L. L., Surgeon. Ordered to the Marine Recruiting Station, New York. **Weston,** A. T., Assistant Surgeon, Medical Reserve Corps. Detached from the Marine Recruiting Station, New York.

Births, Marriages, and Deaths.**Married.**

Buesser—Carpenter.—In Detroit, Mich., on Monday, March 1st, Dr. Frederick G. Buesser and Miss Leila Elizabeth Carpenter. **Capp—Rodearmel.**—In Lancaster, Pa., on Wednesday, February 24th, Dr. Walter S. Capp and Mrs. S. Flora Rodearmel. **Harter—Boynton.**—In Herkimer, N. Y., on Thursday, March 4th, Dr. Fred J. Harter and Mrs. Goldie Benton Boynton. **Mack—Atkinson.**—In San Jose, Cal., on Thursday, March 4th, Dr. Clifford W. Mack, of Agnew, Cal., and Miss Myrtle Atkinson. **Miller—Daugherty.**—In Philadelphia, on Monday, March 8th, Dr. Thomas V. Miller and Miss Lillian B. Daugherty. **Tessier—Hanmore.**—In Providence, R. I., on Monday, March 1st, Dr. Joseph N. Tessier, of New Bedford, Mass., and Miss Lena R. Hanmore.

Died.

Abernathy.—In Birmingham, Ala., on Sunday, February 28th, Dr. J. C. Abernathy, aged seventy-nine years. **Able.**—In St. Matthews, S. C., on Saturday, February 27th, Dr. Morse L. Able, aged forty-six years. **Amadon.**—In Saranac Lake, N. Y., on Monday, March 8th, Dr. Alfred M. Amadon, aged forty-seven years. **Benton.**—In Brooklyn, N. Y., on Wednesday, March 3d, Dr. Stuart H. Benton. **Bloodgood.**—In Brooklyn, N. Y., on Friday, March 12, Dr. Joseph F. Bloodgood, aged fifty-four years. **Bohan.**—In Chicago, Ill., on

Wednesday, March 3d, Dr. John C. Bohan, aged fifty-five years. **Boyd.**—In Newton, Iowa, on Saturday, February 27th, Dr. Charles E. Boyd, aged forty-five years. **Bromley.**—In Philadelphia, on Thursday, March 4th, Dr. John L. Bromley, aged forty-six years. **Byrne.**—In New York, on Wednesday, March 3d, Dr. Thomas Byrne, of West Hoboken, N. J., aged fifty-six years. **Carl.**—In Greencastle, Pa., on Friday, March 5th, Dr. George Carl, aged eighty-five years. **Chandler.**—In Townsend, Mass., on Monday, March 1st, Dr. Luther G. Chandler, aged seventy years. **Davies.**—In Mt. Alto, Pa., on Thursday, February 25th, Dr. William T. Davies, of Towanda, aged forty-three years. **Eagon.**—In Dallas, Texas, on Wednesday, March 3d, Dr. Sampson Eagon, aged eighty years. **Elliott.**—In Sharon, Pa., on Sunday, February 28th, Dr. Thomas Elliott, aged sixty-five years. **Finley.**—In Centerville, S. Dak., on Saturday, February 20th, Dr. Richard Finley, aged seventy years. **Fowler.**

In Milwaukee, Wis., on Thursday, March 4th, Dr. John W. Fowler, of Dubuque, Iowa, aged fifty-seven years. **Freund.**—In Butte, Mont., on Friday, February 26th, Dr. Ray S. Freund, aged forty-three years. **Fry.**—In Mattoon, Ill., on Wednesday, March 3d, Dr. Charles B. Fry, aged eighty-three years. **Gillis.**—In Carbondale, Pa., on Monday, March 1st, Dr. Alexander F. Gillis, aged sixty-six years. **Goldsworthy.**—In Duluth, Minn., on Wednesday, March 3d, Dr. William Goldsworthy, aged thirty-eight years. **Gregory.**—In Elmira, N. Y., on Friday, February 26th, Dr. George W. Gregory. **Gwinner.**—In Pottsville, Pa., on Saturday, March 6th, Dr. John M. Gwinner, aged fifty-eight years. **Hendricks.**—In Chicago, Ill., on Saturday, March 6th, Dr. William S. Hendricks, aged sixty-four years. **Herrick.**—In Grand Rapids, Mich., on Friday, March 5th, Dr. Orris E. Herrick, aged sixty-eight years. **Hoey.**—In Clarksburg, W. Va., on Wednesday, March 3d, Dr. J. M. Hoey, aged sixty-nine years. **Hoyt.**—In Bridgeport, Conn., on Friday, March 5th, Dr. Curtis C. Hoyt, aged sixty-three years. **Hull.**—In Providence, R. I., on Tuesday, March 2d, Dr. James Christopher Hull, aged seventy years. **Keenan.**—In Madison, Wis., on Thursday, March 4th, Dr. George E. Keenan, aged fifty-four years. **McCullough.**—In Battle Creek, Mich., on Thursday, February 25th, Dr. Harmon L. McCullough, of Cookport, Pa., aged sixty-two years. **Maguire.**—In Dorchester, Mass., on Friday, March 5th, Dr. Thomas H. Maguire, aged thirty-eight years. **Martin.**—In Franklin, Mass., on Tuesday, March 9th, Dr. Gregory A. Martin, aged seventy-two years. **Miller.**—In Frederick, Md., on Saturday, February 27th, Dr. T. E. R. Miller, aged seventy years. **Mills.**—In Calumet, Mich., on Friday, March 5th, Dr. Albert Beekman Mills, aged forty-two years. **Minchin.**—In Berlin, Ontario, on Saturday, February 27th, Dr. David J. Minchin, aged fifty-seven years. **Mosby.**—In Richmond, Mo., on Friday, February 26th, Dr. William W. Mosby, aged ninety-one years. **Plymire.**—In South San Francisco, Cal., on Saturday, February 27th, Dr. Harry G. Plymire, aged thirty-eight years. **Prankard.**—In Brooklyn, N. Y., on Tuesday, March 9th, Dr. William Prankard, aged eighty-four years. **Raymond.**—In Brooklyn, N. Y., on Sunday, March 7th, Dr. Joseph Howard Raymond, aged seventy years. **Reber.**—In St. Louis, Mo., on Sunday, February 28th, Dr. Lyman Shoemakersville Reber, aged sixty-nine years. **Rosenbloom.**—In Philadelphia, on Monday, March 8th, Dr. Jules Rosenbloom, aged thirty-six years. **Sandoe.**—In Cincinnati, Ohio, on Friday, February 26th, Dr. Jacob L. Sandoe, aged fifty-nine years. **Stephens.**—In Chattanooga, Tenn., on Thursday, March 4th, Dr. William H. Stephens, aged thirty-seven years. **Swogger.**—In New Bedford, Pa., on Sunday, March 7th, Dr. Lawrence Swogger, aged forty-five years. **Thomas.**—In Macon, Ga., on Friday, March 5th, Dr. Henry W. Thomas, aged forty-seven years. **Treichler.**—In Elizabethtown, Pa., on Saturday, February 27th, Dr. Abraham C. Treichler, aged seventy years. **Van Der Poel.**—In Summit, N. J., on Sunday, February 28th, Dr. Waldron B. Van Der Poel, aged sixty years. **Whims.**—In Baltimore, Md., on Sunday, March 7th, Dr. Thomas G. Whims, of Lasker, N. C., aged thirty-eight years. **Witter.**—In Wichita, Kansas, on Wednesday, February 24th, Dr. Merritt G. Witter, of Tonkawa, Okla., aged seventy-five years.

New York Medical Journal

INCORPORATING THE

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Philadelphia Medical Journal and The Medical News

A Weekly Review of Medicine, Established 1843.

VOL. CI, No. 13.

NEW YORK, MARCH 27, 1915.

WHOLE No. 1895.

Original Communications.

SEX GLAND IMPLANTATION.

Some Further Experimental Observations.

BY G. FRANK LYDSTON, M. D.,
Chicago.

In the *Bulletin* of the Chicago Medical Society, for March 7, 1914, and in the NEW YORK MEDICAL JOURNAL for March 21, April 4, July 11, October 17, 24, 31, and November 7, 1914, appeared reports of the experimental work which I had performed in sex gland implantations with material taken from dead bodies. The reports comprised certain physiological and therapeutic observations and conclusions based upon the experiments, together with illustrations of the macroscopic and histological results of the implantation. In résumé, my various contributions presented the following:

For hormone therapy purposes, successful total or partial implantation of human sex glands in both male and female is practicable. The prospect of success from anastomotic implantation—with resulting generative functioning—at present is not brilliant, although by no means hopeless. Glands taken from the living subject are most desirable, though rarely obtainable. Glands taken from the healthy dead body at any time prior to the beginning of decomposition are of therapeutic value equal to that of those taken from the living, if implantation succeeds. In human beings the gland of the female may be successfully implanted upon the male, and probably the reverse obtains. The hormone of the one possibly is useful to the other. The tissues of the female apparently are more hospitable to the implanted male sex glands than are the tissues of the male. The physiological and therapeutic results occur independently of the site of the implantation, but the vicinity of the peritoneum (extraabdominal) and the canal of Nuck in the female, and of the tunica vaginalis in the male, are the sites of election. Blood pressure apparently is modified, suggesting improved nutrition of the heart and vessels. The development of senility possibly can be retarded and longevity increased by internal sex secretions derived from implantation. That arteriosclerosis in its early stages will be benefited by sex gland implantation is probable. Inferentially, senile dementia, if taken early, possibly may show beneficial results. The climacteric may be postponed or at least the disagreeable features of the climacteric relieved. Defective and aberrant psychical or physical sex development and differentiation—inversions

and perversions—are definite indications for sex gland implantation. Certain cases of cryptorchidism and imperfect testicular development are an especially promising field. Certain psychopathies, such as dementia præcox, possibly may be benefited by implantation. Chronic diseases of the skin, due to or modified by nutritional disturbances—notably certain types of chronic eczema, psoriasis, and ichthyosis—in a certain proportion of cases are likely to be benefited, possibly cured, by sex gland implantation. All conditions incidental to sex gland mutilations in either sex afford a positive indication for sex gland implantation, the probability of benefit being inversely as the length of time that has elapsed since the mutilation, and dependent on the age at which it occurred. In properly selected cases successful implantation ought inevitably to increase physiological efficiency, with all the benefits accruing therefrom. With increased physiological efficiency comes individual and social efficiency. In general, all morbid conditions in which malnutrition exists, are likely to be benefited by the sex hormone, which is a powerful physiological cell stimulant and nutrient. Microscopic sections of implanted glands show regeneration of the circulation and of the interstitial connective tissue which, inferentially, produces the so called internal secretion. What is true of the sex glands is also true of all other glands which produce hormone. All hormone producing glands from dead bodies are available sources of material for hormone therapy. Emulsions of glandular organs from dead human bodies, acting in less degree but in manner similar to implantation, are likely to be of therapeutic value, and superior to so called extracts and to desiccated substances from the glands of the lower animals.

It is the purpose of the present paper to present more in detail certain features of the experimental work previously recorded, with additional observations which will serve to make the work more comprehensive and complete, and it is hoped, even more convincing. The illustrations speak for themselves. The photomicrographs are confirmatory of the drawings with which my previous articles were illustrated.

In the various articles to which I have alluded, certain experiments upon fowls have been mentioned, without presentation in detail. A number of experiments were made.¹ Fully comprehending the improbability of securing marked results from

¹In my experiments upon fowls, I had the intelligent cooperation and assistance of Mr. Herman Elieh and Dr. J. Lawrence Smith, both of whom have had considerable experience in cauponizing, and have taken great interest in the scientific features of my work.

testicular implantations upon adult subjects castrated prior to the full development of secondary sex characteristics, and having in mind merely the possible effects of the sex hormone upon nutrition, I made the following experiment:

I. Subject, a Buff Wyandotte capon, eighteen months old, caponized at the age of four months. Weight nine pounds. Male plumage distinct.² The almost complete absence of comb and wattles, the pallor of the face, spiritless air, massive development, clumsiness, lack of gloss of plumage, relatively inferior length and bulk of cock feathers, limited appetite, sluggish movements, lack of spurs, and asexuality of the subject were very characteristic.

April 28, 1914, the left testicle of a normal cock of the "butcher shop" mongrel variety, was implanted in the left side of the pelvis—extraperitoneally—of the capon. The wound healed promptly.

Beginning about one week after the implantation, the subject "braced up" considerably. The plumage became more glossy, the carriage of the fowl was more like that of the normal male, and appetite and color were greatly improved. By the end of the second week the improvement in condition was marked in every way, and manipulation of the vent showed a distinct sexual reflex with characteristic response on the part of the subject, less only in degree than in the normal fowl.

The improvement not only did not continue, but deterioration occurred, although at the end of three weeks after the implantation the condition still was better than prior to the experiment. The sexual reflex had almost entirely disappeared. Meanwhile several heteroimplantations of glands from nonrelated donors were done upon normal fowls, with recovery of the subjects, but, as shown by subsequent dissection, without success of any of the implantations *per se*.

II. The left testicle of a small mongrel cock, one year old, was removed and replaced by the left testicle of a recently killed Black Minorca cock, one year old. There was considerable hemorrhage, but the bird apparently recovered from the immediate effects of the operation.³ Death occurred on the second day, apparently from enteritis with profuse diarrhea. Wound normal. No autopsy.

III. A testis from a large Buff Rock, fifteen months old—the largest testicle, by the way, that I ever have seen in a fowl—was implanted extraperitoneally in the left side of the abdomen, just above the groin, of a female Buff Wyandotte, five years old. Death occurred, probably from enteritis, on the third day. Wound normal. No autopsy.

In the early period of my work I did a double heteroimplantation upon a year old mongrel cock, which was reported to have died six days later from exhaustion and diarrhea. As this bird had been kept under very unsanitary conditions and had been half starved and otherwise abused, and the operation had been severe, I had not ascribed any significance to its death. Now, however, after the results obtained in Experiments II and III, I began to consider the toxic possibilities of implantation, and was pertinently reminded of the phenomena of anaphylaxis said to result occasionally from various serums, and which, frankly, I had not believed to be due to protein, but to some other serum content producing toxemia. Acute sepsis, I thought, practically could be disregarded in my experiments, as

fowls tolerate operations well, where severe hemorrhage can be avoided. When properly performed, caponizing in young fowls does not show over one per cent. of deaths, and this from shock and hemorrhage, or hemorrhage alone.⁵

To determine the following points: 1, The effect of successive implantations on the same subject; 2, the effect of implantation of the male sex gland upon the female; 3, the effect of large doses of gland tissue upon the female; 4, the effect of alien protein from the fowl's testicle upon a higher animal; I next made the following experiments:

IV. May 21, 1914, the companion testis of the one used in Experiment III, was implanted in the right side of the pelvis—extraperitoneally—of the same capon used in Experiment I. The bird seemed indisposed for forty-eight hours after the implantation. He then rapidly recovered. May 29th, the color, general carriage, lustre and carriage of plumage, spirit, activity, and appetite all were more than ever like the normal characteristics, although by no means up to standard. The sexual reflex reappeared in slight degree.

August 24th, a slight further improvement was noticeable in the various points mentioned, save as to the sexual reflex, which had disappeared. The bird was much more active than ever and showed signs of combativeness, fighting a little with strange males—who very promptly attacked him. This latter point is important, inasmuch as normal males at once recognize the capon as in no sense a rival and rarely annoy him. The subject, as before, showed no disposition to approach the female sexually.

Some weeks later I exhibited this capon at the North Shore Branch of the Chicago Medical Society, recounted the apparent results of the experiments, and stated not only that I was astonished at accomplishing anything whatever in the experiment in question, but had no hopes of further improvement in the fowl's condition.

About the middle of November, 1914, the capon was found fighting quite savagely with another bird through the lattice of his coop, and several times was heard to crow distinctly. The subject still showed no disposition to approach the female sexually.

That a marked degree of physiological regeneration occurred in this case is evident. So far as it goes, the experiment also tends to show the safety of successive implantations. Obviously the dose was much larger than in human implantations. Re-implantation in the human subject, if done at all, would be performed only after a considerable interval, and considering this point and the results of the experiment on the capon may be regarded as safe. A noteworthy point is the continuance and slowness of the process of regeneration. That there should have been in the eunuch any awakening whatever of dormant sex characteristics is remarkable.

There is a vast difference between implantation upon (a) a young male that has recently been castrated or one that has been castrated after full maturity, and (b) a male that has been castrated early and has arrived at full maturity. The difference lies in the fact that in the one instance the secondary sex characteristics may continue to grow or are already developed, while in the other the secondary sex characteristics never have developed and regeneration is very difficult of accomplishment. Once psychosexuality has developed and impressed the animal during the period of growth, the results of its influence remain, even though sex power and de-

²It is necessary to defer caponizing until the male plumage is fairly well shown and the testes are sufficiently large to be comparatively easily found. This accounts for the presence of the plumage factor of the secondary sex characters in the capon.

³I have not yet succeeded in perfecting a satisfactory technic for castrating adult birds. The ribs are firm, the testes too soft to endure much manipulation, and the vessels quite large, the arteries coming almost directly from the aorta and the veins emptying directly into the vena cava. The vessels also are very fragile. With the exception of the subject used in Experiment II, all have died of hemorrhage on the operating table. The operation is suggestive of removal of the human kidney without easy access or means for controlling hemorrhage.

⁵Offhand, I should say that a human testis of the same relative size would weigh between two and three pounds. This to say nothing of the relatively greater activity of the gland in fowls.

⁴Mr. Elich states that this has been his experience, and further that now, having adopted my suggestion of refraining from the usual preliminary starvation of the fowls, he is doing the work more easily, is getting better results and believes that in future he will not lose even his previous small percentage. Twelve hours' abstinence from food, I believe, to be amply sufficient.

sire completely disappear. Both sex power and desire may, however, remain for a variable period after complete castration in adults. Where they remain in young animals, the explanation usually is an incomplete operation. I recall an instance of a gelding that was castrated late, who served mares



FIG. 1.—Capon used in experiments 1 and 4.

as normally as any stallion. Here, the operation may or may not have been complete. Apropos of this point, the high valuation set in the Orient upon eunuchs who have suffered complete ablation of the genitalia is readily understood.

It is probable that, in my experiment on the capon, very little of the implanted tissue survived, yet it must have been sufficient at least to set the regenerative process in motion. The application of this



FIG. 2.—Normal full brother of capon shown in Fig. 1.

to human hormone therapy is evident. The test in this case obviously was the severest possible. It is my intention to perform further implantations on the same subject.

Figs. 1 and 2 show the more important differences in the appearance of the head of the caponized and of the uncaponized fowl. The birds are full brothers of the same age.

V. An exceptionally large testis from a mongrel cock, one year old, and a small testis from a White Leghorn cockerel, four months old, were implanted in the right side of the pelvis—extraperitoneally—of a thoroughbred Light Brahma pullet, four months old. At the same time the companion testis of the young Leghorn was implanted in the pullet's left breast. That the dose of gland tissue was enormous is obvious.

Healing was prompt and the subject was continuously normal. Seventy-five days after implantation, the pullet

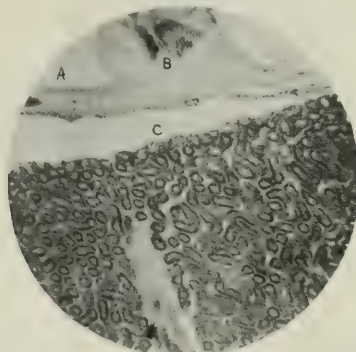


FIG. 3.—Section of normal testis of cockerel four months old, showing characteristically great abundance of generative gland tissue (tubuli seminiferi). A, Rolled up—cylinder-like—segment of delicate peritoneal investment, corresponding to the visceral layer of the tunica vaginalis and the tunica albuginea of testis of higher animals. B, Mesotestis, i. e., tunical fold at epididymal border of gland. This is almost as delicate as a cobweb. C, Tubuli seminiferi. ($\times 70$.)

was killed. Autopsy: Body exceptionally plump and well nourished. Organs normal. No vestige of the gland implanted in the breast. Those implanted in the pelvis were living, and plainly recognizable as testes. Vascular supply macroscopically abundant. Vessels of attachment between the two implanted glands macroscopically visible. The larger gland was a firm lenticular body about 2 cm. long, 15 mm. wide, and one cm. thick. Weight, 3.05 gram. The

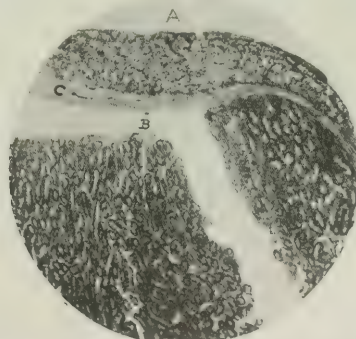


FIG. 4.—Another section of same testis shown in Fig. 3. A, Epididymis. B, Tubuli seminiferi. C, Tunica propria (testicular covering) of testis. ($\times 5$.)

smaller testis was especially vascular in its environments and its "testicular" conformation especially plain. It measured approximately one cm. in length, 6 mm. in width, and 5 mm. in thickness, being about two thirds its normal size. Weight, 0.6 gram. The microscopic characters of the implanted organs are shown in Figs. 10, 11, 12, 13, and 14.

VI. An exceptionally large right testis from a mongrel cock, one year old, was implanted extraperitoneally in the

abdomen of a Buff Wyandotte laying hen, one year old. Healing was prompt and that there were no evil results is evident from the fact that the subject went on laying as if nothing had happened. This is important, as the slightest abnormal condition of health, and even slight nervous disturbance, such as changing to a strange coop, usually checks egg laying.

A fowl purporting to be the same as the subject of Ex-

periment VI, after implantation, and by subsequent histological study, demonstrated also the success of the implantation *per se*, confirming the results obtained in my previous experiments on the human subject (Figs. 15, 16, 17, and 18). That such remarkable results should accrue from implantations of male glands

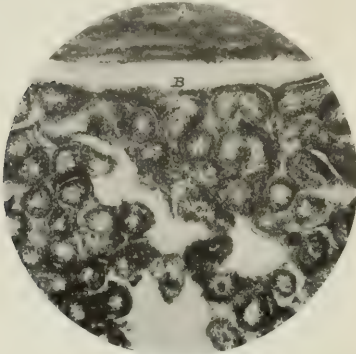


FIG. 5.—Section of normal testis of boy of fourteen years. A. Tunica albuginea. B. Tubuli seminiferi. ($\times 40$.)

periment VI was killed three months later. Autopsy showed normality throughout, but no trace of the implanted gland. As there was not even a vestige of scar or connective tissue at the recorded site of implantation, I am in doubt as to whether or not some mistake in the identity of the subject was made. It is only fair to state, however, that Mr. Elich was confident that no mistake had occurred.

As far as points 1, 2, and 3 are concerned, the results of the foregoing experiments seem quite conclusive. In the case of the hen used in Experiment III, old age probably had much to do with the result.

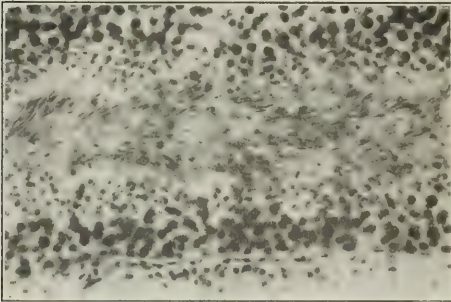


FIG. 6.—Seminiferous tubule of a young ram, showing enormous number of immature spermatozoa.

The possibility that a large dose of hormone from a relatively young gland may have been the disastrous factor is freely admitted, but, granting this, no such result could occur from the relatively small dose resulting from implantation in the human subject. The other fatalities probably were due to coincidental causes, with due regard to the possibility of individual predisposition and the remote effects of shock.

Experiment V, as shown by the microscopic appearances of the removed glands nearly three months

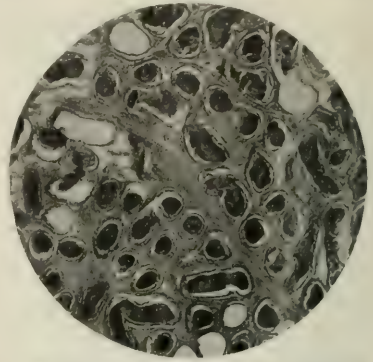


FIG. 7.—Transverse section of epididymis of a young ram, showing trabeculae and tubuli. Masses of coagulated semen are seen within the tubuli. Some of these masses have fallen out, leaving the lumen of the tubuli clear. ($\times 16.8$.)

upon the female is not so astonishing as it may seem at first sight. The blood of the female is excellent pabulum for every tissue in the body, as witness the development of the fetus *in utero*.

VII. As to point 4: A very large left testis—companion to that used in Experiment VI—was implanted in the left groin of an Airedale terrier, three months old. Local

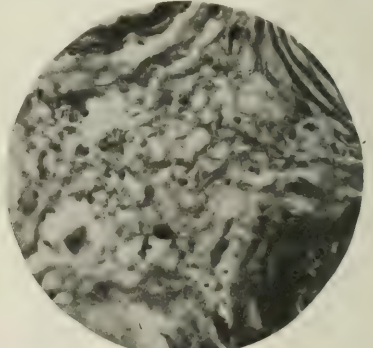


FIG. 8.—Interstitial (intertubular) connective tissue of epididymis of a young ram. ($\times 37.1$.) Compare with Figs. 9, 12, 17, and 18.

anesthesia was employed, with more attention to asepsis than in the case of the fowls, although the technic was by no means all that could be desired. Primary union occurred, but on the fourth day sloughing of the superficial tissues of the abdomen began, and by the seventh day nearly the entire abdominal wall was denuded down to the muscular aponeurosis, necessitating the killing of the animal.

Even after making due allowance for greater facility of infection, the foregoing result was in striking contrast to that obtained in fowls. In a large number of fowl implantations I have seen but

two cases of infection. These were purely local and chronic, consisting of a bad smelling fungus-like growth with slight suppuration, and no deterioration of general health.

It is worthy of comment that the relative degree of traumatism in implanting adult testes in fowls

In a number of experiments in "exchange" transplantations in both unrelated and related young cockerels, I apparently have met with but one success in preserving the secondary sex characteristics, although, in every instance, they developed much better than they did in control capons. It is possible

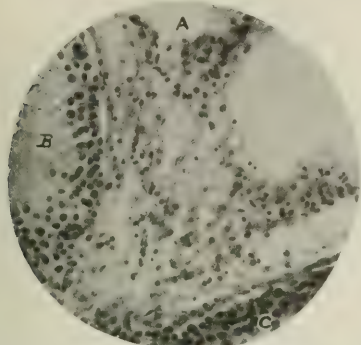


FIG. 9.—Section of the body of testis of a young ram. A, Interstitial (intertubular) connective tissue. B-C, Tubuli seminiferi, showing secretory epithelium. ($\times 375$.) Compare with Figs. 8, 12, 17, and 18.

—especially young ones—is immensely greater than that involved in implantations in the higher animals. In fowls the implanted gland is so large that it presses considerably on the tissues of the implantation bed, and even on the viscera. Fowls, moreover, are relatively insensitive to injuries. As to the "alien species protein" factor in the foregoing

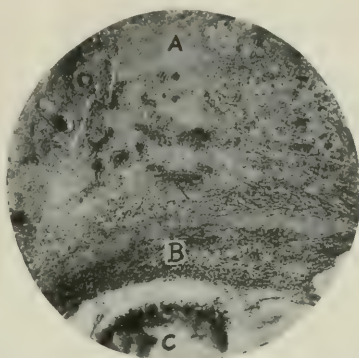


FIG. 11.—Section of testis of cock one year old, implanted in an unrelated pullet four months old, and removed at the end of seventy-five days. (Experiment v.) A-B, Subcortical area showing completely organized connective tissue, mainly of the interstitial variety, but containing ordinary fibroconnective tissue in small amount. An abundance of new vessels filled with normal blood may be seen. B shows the actively regenerating, but not yet permanently organized interstitial tissue at the border of the medullary portion of the gland. C, Degenerated tubuli. Periphery of gland not shown. ($\times 60$.)

that different results may be obtained from implantation of unrelated adult testes on young fowls. The details of all my various experiments would

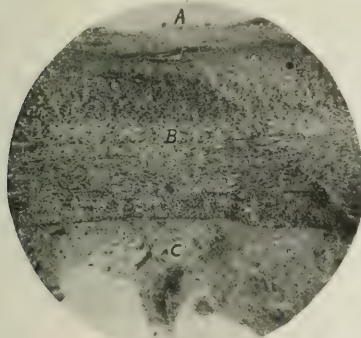


FIG. 10.—Section of testis of a cockerel four months old, implanted in an unrelated pullet, four months old, and removed at the end of seventy-five days. (Experiment v.) A, Ordinary fibroconnective tissue at the periphery of the gland, corresponding to its peritoneal tunic. B, Abundantly proliferated interstitial connective tissue, with a moderate amount of ordinary connective tissue. C, Remains of the tubuli seminiferi, not yet firmly organized via connective tissue proliferation. At its inferior border is seen a new capillary, showing that the degenerated mass of true secreting tissue is living. ($\times 65$.) Compare with Figs. 11, 12, 14, and 16.

experiment, I confess that I was somewhat in doubt. Since, however, my recent extensive experiments with organ emulsions,⁶ I have been reassured on this point.

⁶Experiments with Emulsions of Organs Taken from the Dead Human Body and Sex Glands of the Lower Animals, *American Medicine*, December, 1914.

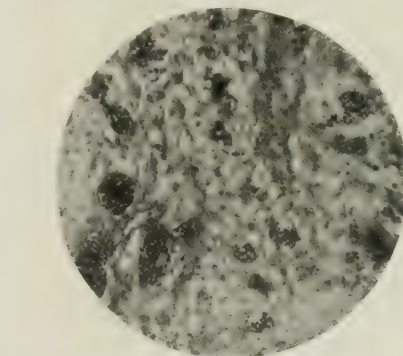


FIG. 12.—Area of section depicted in Fig. 11 under higher power, showing abundant proliferation of the characteristic interstitial cells in testis of cock one year old, implanted upon a young unrelated female and removed at the end of seventy-five days (Experiment v). The normal blood content of the numerous vessels is plainly seen. There apparently is very little fibroconnective tissue, and this is situated chiefly in the vicinity of the vessels. ($\times 230$.) Compare with Figs. 8, 9, 12, 17, and 18.

here be superfluous. Two of these experiments, however, are of especial interest.

VIII. The testes of a Light Brahma cockerel, four months old, were removed and replaced by those of a White Leghorn of the same age. The recipient matured with great rapidity—compared with other males of the same strain—as to color, weight, comb, and wattles, plumage, carriage and what is termed by fanciers the "talking

voice," which within two weeks was transformed from the "peep" of the young fowl into the hoarse notes of the adult. The bird became more spirited and combative. The testes of the Brahma were implanted in the normal position in the Leghorn, who subsequently showed all the usual characteristics of the capon.

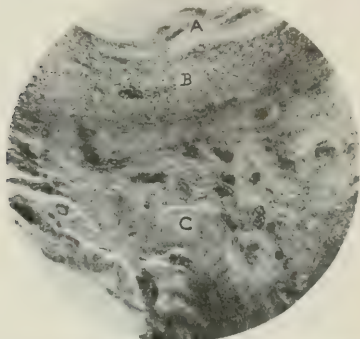


FIG. 12. Section of testis of cock, one year old, implanted on an unrelated pullet four months old, and removed at the end of seventy-five days (Experiment v). A, Ordinary connective tissue, corresponding to the location of the peritoneal testicular investment. B, Subcortical layer of abundantly proliferating interstitial (intertubular) connective tissue, with a small amount of the ordinary variety. C, Permanently organized interstitial tissue, with a moderate amount of ordinary fibroconnective tissue, richly supplied with new bloodvessels containing normal blood. ($\times 45$.)

The effects of the implantation on the Brahma gradually disappeared, and he now—seven months after the removal of the testes—resembles a capon castrated rather late, markedly conforming with uncastrated males in everything save crowing and sex activity. The difference in results in the two birds probably was due to the relatively early development and great activity of the sex glands taken from the Leghorn—one of our best laying breeds—

IX. May 15, 1914, I removed the testes of two White Orpington cockerels—half brothers—three months old, and implanted the testes of one subject upon the other, in the normal site of the testes, leaving one bird caponized for a control. December 11, 1914, I examined the implantation subject and found him to be a splendidly developed, normal

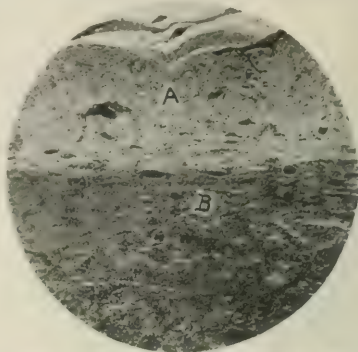


FIG. 13. Section of testes removed from male of thirty years, dead ten hours from contact with a live wire. Gland refrigerated four days in an ordinary ice box and implanted in the abdominal wall upon the aponeurosis of the right rectus in the lumbago region—of an unrelated female senile dement, aged sixty years. Gland removed after four months and nine days. A, Tunica albuginea, showing characteristic fibroconnective tissue and bloodvessels (both old and new). B, Subcortical stratum of proliferated interstitial (intertubular) tissue, containing an abundance of new bloodvessels. Here and there in the mass of interstitial tissue are seen the dark, distorted outlines of tubuli seminiferi, which have been "strangled" out and replaced by the interstitial cells, for the development of which the tubuli seemingly form an excellent matrix. The line of demarcation between the two kinds of tissue is plainly marked. (Compare with Figs. 16, 17, 18, 19, and 20.)

male, with all the secondary sex characteristics perfect. He is active, very pugnacious, and performs his sexual function just as would any normal male fowl. The capon-

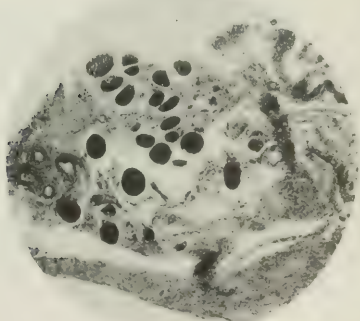


FIG. 14. Section of testis from cock, one year old, implanted for seventy-five days in an unrelated pullet, four months old (Experiment v), showing permanently organized interstitial (intertubular) connective tissue, with a considerable amount of ordinary fibroconnective tissue, an abundant supply of new bloodvessels containing normal blood, and numerous large, deeply stained, round and ovoid bodies constituting degenerated, but still living, tubuli seminiferi. ($\times 280$.)

compared with those taken from the Brahma, a breed which develops sex characters very slowly.¹

¹It is interesting to note the intimate relation of early and marked sex gland development to the great laying capacity of various fowls. What is true of the testis, also is true of the ovary. The possibility of improving the laying qualities and fertility of various strains by sex gland implantations upon normal birds at once suggests itself and may prove of interest to breeders.

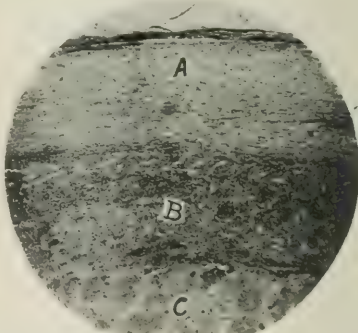


FIG. 15. Section of testis from female of thirty years, dead ten hours from contact with a live wire, implanted upon an unrelated female. Gland refrigerated four days. Removed four months and nine days after implantation. A, Tunica albuginea, showing ordinary fibroconnective tissue and bloodvessels. B, Stratum of characteristic interstitial (intertubular) tissue, obscurely showing distorted outlines of obsolete tubuli seminiferi, with abundant supply of bloodvessels. C, Seminal tubuli—the secretory epithelium of which has disappeared—plainly marked and unmistakable. In this particular area the tubuli took the stain in very moderate degree, but quite as well, it will be observed, as the unquestionably living tunica albuginea. ($\times 60$.)

ized subject showed fairly well developed secondary sex characters and while more active than is usual with capons, presented a marked contrast with the implanted subject.

The histological study of sections of the implanted fowls'

testes removed from experimental subject A proved very interesting and instructive. To facilitate the study of these and of other of implanted glands reported in this paper, and for the purpose of comparison, I first will present several sections of normal testes.

Fig. 4 represents a very interesting specimen and showing the perfect development of the epididymis and of the testicular structure proper in an ex-

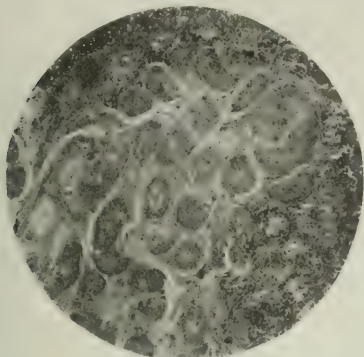


FIG. 17. Section of another area of same testis from which Fig. 16 was taken, showing still more clearly the living but obsolete tubuli seminiferi, which gradually are being displaced and replaced by the interstitial (intertubular) connective tissue. The outlines of the tubuli which already have been completely engulfed in the abundant cells of the interstitial tissue still are discernible, whilst some of those at the borders of the area of the tubuli which are not yet completely engulfed in the cell network, are more plainly visible than those which are not yet greatly encroached upon. ($\times 325$.)

remely small gland from a very young subject. The epididymis was not macroscopically recognizable. Comparison of Figs. 3 and 4 with Fig. 5 demonstrates the relative great richness of the generative gland tissue of the fowl contrasted with that of the human subject.

In my previous contribution to the *NEW YORK MEDICAL JOURNAL* I stated that, despite the statements of Marshall and Hammond,⁸ I believed that the epididymis probably played at least a minor rôle in hormone production. The photomicrograph (Fig. 8) seemingly confirms my belief.

It is interesting to note the distinct lines of demarcation between the strata of the various kinds of tissue (A, B, C) in the foregoing section and in certain of those which will follow. The interior of the gland probably was not necrotic in the true sense of the term, but was not yet organized and was so soft that it fell out of the section. This often happens in making sections of perfectly normal glands. It will be observed that the characteristic appearance of the interstitial connective tissue in stratum B is plainest just beneath the cortical layer of fibroconnective tissue and just at and above the line of demarcation separating B and C. It will be seen that this histological feature is prominent in all similar sections—from both fowl and human being—exhibited herewith. This particular phenomenon is explicable by the greater circulatory activity and consequent better nutrition at the points mentioned. At the periphery, notably adjacent to the pia mater testis, or tunica vasculosa, conditions especially favor tissue regeneration. A certain

amount of ordinary connective tissue is found in the implanted glands, apparently derived—as shown in Figs. 8, 10, 11, 12, 14, and 15—not from the tunica propria of the gland, but from the septa of the gland, of which the corpus highmorianum is the most important, and probably also from the walls of the bloodvessels (Figs. 9 and 12). By far the greater part of the new tissue is composed of proliferated characteristic interstitial (intertubular) cells.

What is going on in the mass of degenerated tubuli in the interior of the gland, and its final result, is well shown in Figs. 14, 15, and 16.

The richness of the new blood supply if the implanted gland is well shown in Fig. 11, and in the next following of the series (12). Fig. 12 also demonstrates conclusively that the regenerated tissue is not composed of ordinary fibroconnective tissue—save in small amount—but of what may be inferred to be the characteristic interstitial cells. This tissue plainly is present in the implanted glands in far greater amount than in the normal gland. This perhaps is the most important point. The character of the regenerated tissue is witnessed by Figs. 12 and 17.

The question of whether or not the degenerated tubuli of the testis may retain their vitality after they are functionally dead from destruction of their gland epithelium, would seem to be answered, not only by their retaining their form sufficiently to be recognizable after a long period of time, but also by the manner in which they stain. (See especially, Fig. 17.) Fig. 14 is a pertinent illustration. The remnants of the tubuli took the stain so well that they had the appearance of small plums. The surface of these dark bodies showed the characteristic granular appearance that I have observed in the de-

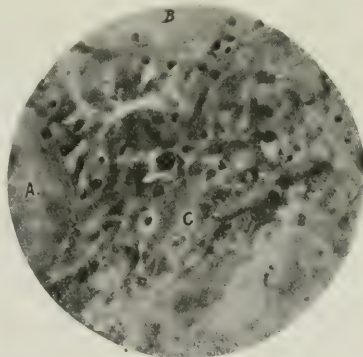


FIG. 18.—Section of testis implanted in the suprapubic region of a woman sixty years of age, and removed at the end of four months and nine days. A-B, Obsolete but still living tubuli seminiferi. C, Interstitial (intertubular) cell proliferation. ($\times 325$.)

generated, though distinctly recognizable tubuli found in implanted human testes. It is hardly probable that tissues so delicate as are the tubuli seminiferi, would endure, if dead, and show as plainly as they do in Fig. 17 (see also Figs. 14 and 16) at the end of seventy-five days after implantation in an alien bed. To believe this, one must un-

derrate the "digestive" or "assimilative" capacity of the normal tissues of the implantation bed, and overrate the resistance of those tissues to dead matter.

The foregoing results of experimental testicular implantations upon fowls are systematically corroborative of those observed in my implantations upon human subjects. To emphasize the histological results obtained in the latter, as shown in my former articles in the *NEW YORK MEDICAL JOURNAL*, and to supplement the illustrative drawings presented therein, I present herewith a series of photomicrographs which show even more satisfactorily the changes occurring in implanted human glands.

The implanted and removed gland herein submitted to histological study, is the one previously reported of a testicle implanted upon a woman of sixty years and removed over four months later.⁹

The illustration (Fig. 16), comprising an area of the same section of the implanted testis—a little larger than that shown in Fig. 15—beautifully shows the various strata from the periphery to the centre of the gland. It shows with especial distinctness the outlines of the obsolete tubuli seminiferi, which have been replaced by the interstitial connective tissue.

The foregoing illustration would seem to show pretty conclusively that, while the tubuli seminiferi of implanted glands undoubtedly lose their function, coincidentally with the death of their secretory epithelium—which probably inevitably occurs in implantations such as mine—the mass proper of the tubular structure—i. e., the basement membrane and its protoplasmic content—may survive for a prolonged period. Whether or not anastomosis—providing a successful technic ever is elaborated—will preserve, or, if it be not wholly destroyed, regenerate the generative gland epithelium, is very doubtful, although it is not impossible.

The resemblance of the structure shown in Fig. 18 to that shown in Fig. 8 is interesting, more especially as the latter shows a section from the epididymis of the ram. It demonstrates clearly the composition of the dark strata of connective tissue shown in the various sections.

(To be concluded.)

STATIC DISLOCATION OF THE HIP.*

Sequel of a Severe Burn.

By DEXTER D. ASHLEY, M. D.,
New York.

This very unusual and interesting condition was presented in a patient referred to me by Dr. Edward Dowdle, of Oswego, N. Y., who gives the following preliminary history:

CASE. S. F., aged seven years, entered the hospital in August, 1911, suffering from extensive third degree burns, which covered most of the surfaces of the lower extremities, except a small area on the anterior aspect. The skin of the buttocks was involved, also of the ventral and anal regions. A second degree burn involved the back and extended as high as the shoulders. The burned area was cleansed with sterile saline solution and boric acid, all

blebs were opened, and burned tissue cut away. The patient was put to bed and the body exposed to the hot air treatment of burns, zinc stearate covering the burned surfaces. General measures were employed, as stimulation, electrolysis, and attempts to enhance kidney function. At one time duodenal ulcer was feared, but the condition



FIG. 1.—S. F. walked, assisted FIG. 2.—Another view of Fig. 1. by crutch, September 3, 1912. X ray showed head below acetabulum.

cleared up within twenty-four hours. With the separation of the eschar and the appearance of granulation, scarlet red ointment was applied, alternating with boric acid ointment. To assist in covering the extensive granulated area, skin grafting was performed by the Thiersch method.

Doctor Dowdle's treatment in the hospital extended from August, 1911, the time of injury, to June, 1912. The child was confined to the bed for eight months—until April, 1912. During most of the time spent in bed she lay prone, put-



FIG. 3. S. F. Best standing FIG. 4. Another view of Fig. 3. position, September 3, 1912.

ting much of her weight upon her left elbow and knee, the limb being in flexion at knee and hip, better to support the body and protect the burned surfaces from body pressure, with resulting deformity as shown in pictures taken September 3, 1912. (Figs. 1, 2, 3, 4.) Upon examination at this time, the following conditions were found:

**NEW YORK MEDICAL JOURNAL*, October 31, 1914. CASE VI of my series.

⁹Presented to the Section in Orthopedics, Academy of Medicine, New York, February 19, 1915.

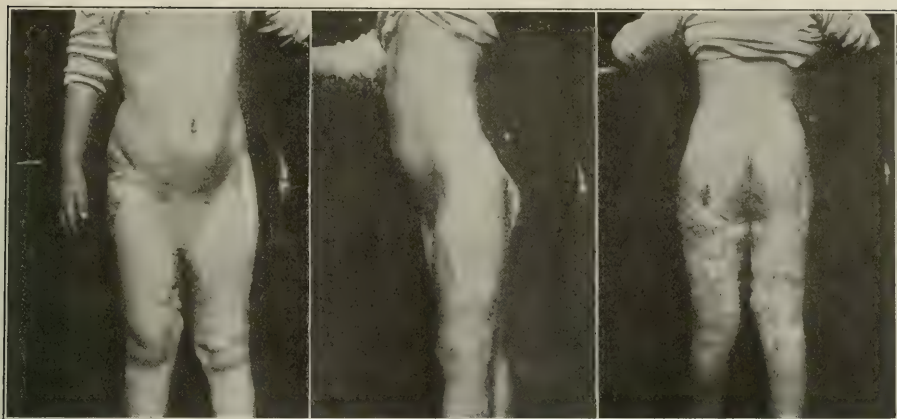


FIG. 5.

FIG. 6.

FIG. 7.

Figs. 5, 6 and 7—October 31, 1912. Plaster of Paris removed for x ray examination. Slight tendency to abduction and flexion. Walked with painful limp. X ray showed head in acetabulum.

The thigh and knee were in marked flexion—the thigh in about 80° of flexion and 5° to 10° outward rotation, with fixed abduction of from 70° to 75° , as shown in figure. There was no cicatrix to account for the position of the thigh. A deep bedsore which had invaded the knee capsule and produced adhesions over the inner condyle prevented extension of the knee to more than 150° . There was little, if any limitation to flexion of the knee. All motions of the thigh were limited, although there was considerable motion in flexion. Any attempt to extend or adduct the thigh was painful, and brought into strong relief the tensor fasciæ femoris, sartorius, and anterior head of the rectus femoris. These muscles had become permanently shortened. Inability to straighten the knee, and the open wound still upon the buttocks, complicated the measurement of the limb.

The picture reminded one of the resistant abduction deformities which are sometimes experienced in postoperative treatment of older children who have had congenital dislocation of the hip; hence the first impression was that we had to deal with a condition of shortening of the iliofemoral muscles. The x ray cleared up the condition, when we could see that a dislocation or luxation downward and inward had taken place. The head of the femur seemed to be resting below the acetabulum, upon the lower edge of the ascending ramus of the os pubis, and approaching the obturator foramen. (Fig. 8.)

On September 5, 1912, the contracted and shortened tissues were lengthened. The reduction then was attempted, with only partial success. Under ether the knee was straightened, the adhesions over the inner condyle readily giving way. Reduction was still prevented by shortened tissues. To overcome this deep resistance, the limb was brought as near to extension, and adducted as far as possible, and placed in plaster of Paris with extension and counter-extension.

On October 1st, the twenty-eighth day, this plaster of Paris was removed, and, as expected, the resistance had largely disappeared. An x ray was taken, showing that the head

had moved up and now rested upon the edge of the acetabulum, apparently in the cotyloid notch. Again the child was etherized, and at this sitting the apparent lengthening was almost eliminated, and measurements from right and left anterior superior spines were found to be equal. The limb was placed in plaster again, in best position.

On October 31st, the plaster was removed and pictures were taken (Figs. 5, 6, 7), also x ray (Fig. 9). The head was seen to be fairly in the acetabulum. The limb still had a tendency to abduction and flexion. Patient walked with painful limp. No pain was experienced when standing or reclining. Child was sent home in plaster, which was to be worn two months, then removed, and massage and active motions to be begun at home in Oswego.

The child was next seen, January 27, 1913. She had been out of plaster about three weeks, and was walking

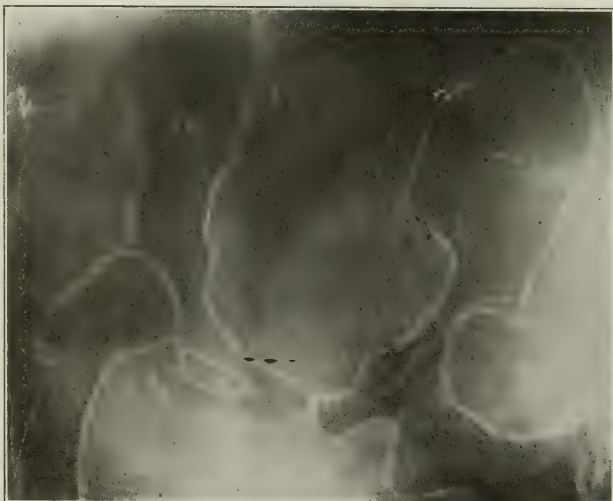


FIG. 8.—X ray taken September 3, 1912. Dislocation downward has taken place by holding the head of the femur at the lower edge of the acetabulum at point of cotyloid notch.

with a slight limp. The limb was found to be in slight adduction and flexion. There was one inch apparent shortening, although according to tape the limbs were equal. All movements were limited and painful; any attempted motion produced intense muscular spasm, simulating hip disease. She had had no massage. A half inch elevation of the heel was prescribed for the sound side, with vigorous massage and active and passive motions, and kicking in abduction, while the knee was to be held straight.

The patient was next seen, May 26, 1913. The notes are: RA—LA. Limb tending to adduction and flexion—not so marked as in January; all motions limited; no spasm. Advised manipulation under narcosis, as the family had not the fortitude to carry out massage and motions. An experienced masseur was employed at this time, with very gratifying results.

When seen December 14, 1914, the girl walked without a halt. The limb went to flexion and extension freely. There was slight limitation in abduction.

Aside from the recovery from so severe a burn, a point of special interest to the writer is the ex-

weak capsular ligament, produce a dislocation upon the ramus when the abductors are intact. When the adductors are active, upward, and backward, dislocation will be found.

As described by some writers, the professional beggars of India, by holding themselves in distorted positions, effect dislocations and become permanently crippled. The forces at work in such instances approach more nearly those which operated in the case above described, since we have here a joint capsule not weakened by disease. Doctor Dowdle states that there was no dislocation at the time of the burn; that the dislocation occurred before April, when the child was permitted to get out of bed; that we may exclude any febrile influence, as there was no considerable fever after the second week. The writer's explanation of the dislocation is as follows: The forces were entirely mechanical, the head being levered out of the acetabulum. The position of the limb in abduction and flexion placed the head opposite the cotyloid notch, guarded only by the comparatively weak transverse ligament and capsular ligament. The flexed and abducted thigh, with the knee resting upon the bed, converted the femur into a lever of the third class (F. P. W.)—the point of the knee the fulcrum, the body weight the power, and the resistance of the tissues to dislocation (the transverse and capsular ligaments) the weight: much as in static flat foot we have a stretching and giving way of the ligaments of the arch, due to superincumbent weight.

This case bears a very useful lesson for the general surgeon in the treatment of acute conditions, and emphasizes the advisability of careful consideration of the tendency to grave deformity, and of the application of orthopedic means and principles to combat such a result.

The writer will be glad to receive the report of any similar instance, or any criticism of the classification herein employed.

316 LEXINGTON AVENUE.

IMMUNIZATION IN A TYPHOID OUT- BREAK IN THE SLOANE HOSPITAL FOR WOMEN.

By M. L. OGAN, M.D.,
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In January and February of the current year, an outbreak of typhoid fever took place in the Sloane Hospital for Women, involving twenty-five cases, chiefly among the physicians, nurses, and subordinate employees. As a number of the doctors and nurses had been immunized against typhoid fever at various times, an opportunity was afforded for a limited but fairly defined study of the effects of this preventive measure. Several of the exposed nurses had a previous history of the disease and had not been artificially immunized, thus adding another element of interest to the subject.

There were in residence during the time the infections took place, 125 patients, seventy-five employees, seventy-three nurses, and eight physicians, a total of 281. All of these are not included in



FIG. 9.—X 105, October 31, 1912. Head rests fairly well in the acetabulum. Tape measures from anterior superior spine to internal malleolus equal. Walked with painful limp at this time.

planation of the forces which were instrumental in producing the luxation or dislocation. He fails to find in any index medicus the record of such a case. A dislocation occurring as a sequel of typhoid is always associated with effusion in the joint and a distention of the capsular ligament, the head being floated out of the acetabulum. The so called "spontaneous" luxations and dislocations after scarlatina, rheumatism, and influenza, are accompanied by distinct local arthritis resulting in destruction or rupture of the capsular ligament, which dissociates the joint surfaces. A dislocation following a severe paralysis, limited to the adductors or abductors, may be encountered quite frequently in any extensive orthopedic clinic. In such cases the active short muscles, pulling *ex centro* to the acetabulum, with a

the study because of the presence of a possible typhoid carrier in the kitchen of the institution, who prepared a certain suspected food which is known to have been partaken of by the doctors and nurses, but not so certainly by the rest of the hospital force, though as a matter of fact, eight of the patients in this latter group are known to have eaten this food. One of the physicians contracting

This is not conclusive as to the feces. Only one of the 125 patients contracted typhoid fever, and as the onset was among the later ones, she may have been a contact case. The immunity analysis will then refer only to the seventy-three nurses and eight physicians, among whom thirty-seven nurses and seven physicians had received three doses previous to the outbreak, some of them as

TABLE I.

TYPHOID FEVER TABLE, SHOWING RELATIVE NUMBER OF CASES OF TYPHOID FEVER AMONG THE NURSES AND PHYSICIANS IMMUNIZED AND NON-IMMUNIZED IN SLOANE HOSPITAL FOR WOMEN OUTBREAK.

Name.	From Hospital Training School.	Immunized cases.	Culture used—					Date of immunization.	Non-immunized persons.	Previous history of typhoid.	Contracted disease at Sloane.	
			Complete.	Partial.	Presbyterian Hospital.	U. S. Gov.	N. Y. Health Dept.				Among immunized.	Among non-immunized.
New York	4	3					2	1913				Immunized while in Florida. Product not known
French	1	1	1				1	1911	1			
Presbyterian	9	6						1913	2			
					1			1913				
					2			1912				
					2			1912				
					3			1913				
Roosevelt	6	6					6	Oct., 1913		1		
St. Luke's	7	2					2	1914				
Post-graduate	6		2			1		1912		1		U. S. Gov. culture, 2 doses only
								1912	4		1	U. S. Gov. culture, 2 doses only
Cambridge street	1											
Out of town hospital	33	7						4 years ago	24			Immunized in Scotland
Nurses								3 years ago		1		Immunized in Canada
								1914		1		Commercial product while traveling on Great Lakes
								1912				Cambridge, Mass., Health Dept.
								1913				Boston, Mass., Health Dept.
								1914		2		
Total nurses	71	37	2		32 ¹		16		29	5		
Physicians	8	7					1	1912		1		Commercial product
								July, 1913		2		Three injections—400,000,000
												750,000,000
												1,000,000,000
								1913				
								1913	1		1	Commercial product
Total physicians	8	7		4	1				1	3	1	
Total nurses and physicians in residence	81	44	2	72 ¹	61 ¹		16		30	5	8	6

TABLE II.

SLOANE OUTBREAK: CLASSIFICATION ACCORDING TO CULTURES USED FOR IMMUNIZATION.

Culture.	Complete immunization.	Partial immunization.	Non-immunized.	Previous history of typhoid fever.	Cases.	Percentage of cases.
United States Government	5	1			1	1
Presbyterian Hospital killed cultures	7				2	2
New York Health Dept.	16				1	1
Commercial or unknown products	16				1	1
Totals	44	1			7	15.9
					30	70.0
					8	20.0

the disease took only one meal at the hospital, and that the particular one at which this food was served. This suspected carrier, with a history of having had typhoid fever six years ago, and exhibiting a faintly positive Widal reaction, left the institution after three negative feces examinations.¹

¹Since the preparation of this article, another specimen obtained from this subject, showed the presence of typhoid bacilli, which, of course, affords the explanation of the outbreak.

far back as three and four years ago. In this group, there were seven of the cases under consideration. One was immunized in 1911, two in 1912, three in 1913, and one in 1914.

Two nurses were partially immunized with two doses each, in 1912. One of them came down during the outbreak and died in the third week. Five nurses gave a previous history of typhoid fever and escaped infection. Twenty-nine nurses and one physician had no artificially or naturally acquired immunity; among these, there were six cases. There were then in all fourteen cases; eight among the forty-six immunized, six among the thirty nonimmunized, none among the five giving a previous history. These and fuller details are shown in the tables, which are submitted for careful consideration.

No defense is offered for the unsatisfactory results, except to point out as the analysis does that some of the immunizations were performed several years ago; that other individuals received an incomplete number of doses; while in two instances the doses did not contain quite the number of bacteria considered advisable by Major Russell of the United States army.

The cases were generally mild. One death, as

noted above, occurred in a nurse who received only a partial immunization in 1912; a case fatality of four per cent. compared with the usual one of eleven per cent. Another sudden death, due to advanced cardiac valvular disease, occurred in a chambermaid, sixty-five years of age, in the second week of her illness.

Thanks are due to the authorities of the Sloane Hospital, to Professor Hans Zinsser, and to the writer's colleagues in the department of health, Dr. Charles Krumwiede and Dr. George Nicholas, for valuable cooperation in this study.

AN IMPROVED TECHNIC FOR BLOOD COUNTS.

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It is only after arduous and painstaking efforts that the technic for making blood counts, as is generally taught, is mastered by the beginner. Even the more experienced clinician and laboratory work-

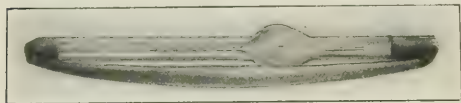


FIG. 1.—End of rubber tubing drawn over tip of pipet to prevent loss of fluid within pipet.

er frequently finds it difficult to regulate the size of drop or to obtain a clear field without air bubbles beneath the cover glass overlying the ruled chamber.

To obviate these difficulties I evolved the following modified technic, which I find rapid and practical: The dilution in the pipets is made as usual.



FIG. 2.—Method of holding rubber tubing between thumb and index finger and the gradual compression of tubing against palm with other fingers to regulate the desired size of drop.

the counting chamber. Gradual compression of tube is made against the palm by the fingers, commencing with the index, and if necessary using the middle, ring, and small finger, in the order named, to regulate the desired size of the drop. The drop

is always under control in this way and its size depends upon the amount of pressure used by one or more fingers.

After obtaining the drop of the suspension, the cover glass is adjusted in the following manner. The slide is steadied on the table with the thumb and middle finger of the left hand; the cover glass is grasped between the thumb and middle finger of the right hand and tilted at an angle of about 45°



FIG. 3.—Adjusting the cover glass over counting chamber. A, Right index finger holding cover glass at an angle over raised portion of horizontal slide. B, Left index finger lowering cover to normal position.

with the horizontal slide. The lower fourth of the cover glass is adjusted to the right margin of the elevated square on the slide and held in position by the right index finger. The upper or left margin of the cover glass is gradually lowered to a horizontal position with the left index finger, using the right margin of the elevated square on the slide as a fulcrum. The result is a clear field without bubbles. If the drop is not too large and the slide and cover glass are clean, the characteristic Newton's rings appear.

The advantages of this technic are: It is simple, easily mastered, and practical; the time in making the blood count is greatly reduced; it obviates the repeated cleansing of slide and cover glass for failure to obtain the desired sized drop or because of the presence of air bubbles over the ruled chamber, which is quite commonly the case when the usual method is practised.

The tip of the rubber tubing is not taken into the mouth for the expulsion of the drop, which is obviously unsanitary to the one making the count and to any one who may use the instrument subsequently.

1226 SPRUCE STREET.

RECENT APPLICATIONS OF RADIUM EMANATIONS AND RADIUM WATER.

By SAMUEL G. TRACY, B. Sc., M. D.,
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Both medical and lay press have recently had many accounts of radium in the treatment of cancer, and much has been said for and against such use of it. The whole issue seems to be in a hazy state; nevertheless the consensus of the radiologists and radium experts is that it is curative in a considerable number of external cases, as in epithelioma, carcinoma, and some cases of sarcoma. These results in external cancers may be obtained by the use of radium bromide—from twenty-five to fifty per cent. pure—and in quantities of not less than twenty-five mgm., which represents from 6.25 to 12.5 mgm. of radium element, and a cost of from

\$1,000 to \$2,000 respectively. Internal cancers—of stomach, uterus, breast, intestine, etc.—when localized and treated early, will be cured in a very small percentage of cases. These results, however, can only be obtained by using radium of at least fifty per cent. purity, and in quantities of fifty to 200 mgm. This means an investment of \$7,500 to \$30,000. With this prohibitive price on radium at least fifty per cent. pure, it is not likely to be used extensively by the rank and file of the medical profession, but only by a few rich medical men or by institutions.

Radium, like many other therapeutic agents, has a destructive and a constructive action, depending upon how and in what quantity it is used. In large doses, when locally applied, it is destructive to diseased tissue, and if exhibited sufficiently long, also to normal tissue. On the other hand, when used in small doses, either in radioactive water¹ or an actual solution of radium bromide, it has a constructive, tonic, metabolic, and vitalizing effect upon the system.

Much has been said about the use of radium in the treatment of cancer, but comparatively little in this country concerning its therapeutic value, in the form of radium emanations or gas (called by Ramsey *niton*) or by radium water—that is, water impregnated with the emanations from radium, or by an actual solution of radium bromide in infinitesimal proportions. Furthermore, radium may also be used hypodermically and intravenously, also in baths, mud packs, ointments, pastes, etc.

PHYSICS OF RADIUM.

Radium, by a natural disintegration of its atoms, gives off three forms of rays—alpha, beta, and gamma rays; and as a result an emanation or gas is evolved (*niton*). The alpha rays are helium atoms charged with positive electricity, which travel into space at the rate of about 20,000 miles a second. The beta rays are electrons, of smaller size, charged with negative electricity, which travel also at the rate of 20,000 miles a second. The gamma rays are not material particles, nor are they charged with electricity. They are very penetrating, however, and travel with the velocity of light—186,000 miles a second. During the disintegration of radium, there are explosions of atoms, accompanied by heat, development of electricity, and chemical action, including the emanation of gas. Von Noorden avers that one c. c. of radium emanation, in its complete disintegration, yields about twenty million calories. The greater amount of this energy accompanies the alpha rays. This powerful force, which becomes active through the explosion of these infinitesimal atoms, is really electricity, and as a matter of fact produces a bombardment within the body which is really a kind of internal electrotherapy.

Measuring the emanation. In the first place, in using radium, radioactive water, or radium solution, it is necessary to know the purity of the salt and the amount of radium element in it. During the first few years of the use of radium, it was

measured by the term radioactivity, uranium having an activity of one. At this time the salts manufactured were quite impure, containing only from five to twenty-five per cent. of radium element. Now, however, radium is standardized. Madame Curie made a specimen of pure radium chloride, which is used as the international standard. It is in the hands of the French Government at Sévres. Our Government has a standard, compared with the one in France, and physicians may send their specimens to the Bureau, at Washington, D. C., where the Government will standardize them for a small charge. According to the new method of standardization, all radium is now estimated as containing so many mgm. of radium element. As a rule, most radium, extracted both here and abroad is from fifty to sixty per cent. pure, and is generally in the form of a bromide, chloride, or sulphate.

The gas or emanation which is evolved from radium, is measured by the Germans in *maché* units, and by the French in *curies* or *microcuries*. The emanation is tested and measured by means of a sensitive electroscope, and calculated in the form of electrostatic units, which multiplied by 1,000, equal *maché* units. Among the French, one gram of radium element in equilibrium gives off one *curie* of emanation. A *microcurie* represents the amount of emanation which is in balance with that evolved by one millionth of a gram or one thousandth mgm. of radium element. The relationships between the French and German measurements are as follows:

1/10 of a microcurie	=	250 maché units
4/10 of a microcurie	=	1,000 maché units
1 microcurie	=	2,500 maché units
2 microcuries	=	5,000 maché units
4 microcuries	=	10,000 maché units

Having these units of measurement in mind, it is necessary, when administering radium water or radium solution, to know the strength of the emanations and the amount to use in different pathological conditions. I will refer to the dose under the head of treatment of special diseases.

METHODS OF OBTAINING RADIOACTIVE WATER OR SOLUTIONS.

From time immemorial, radioactive waters have been used therapeutically, without our knowledge that they were radioactive and that their virtues depended largely upon emanations of radium. These springs are common in Germany and Austria; there are some in England and a few in the United States (Missouri, Arkansas, Yellowstone Park, etc.), and in other States. With few exceptions, however, the radioactivity is not very strong.

Artificially, we may produce radioactive water in two ways—of almost any strength.

1. The first method is a simple and comparatively inexpensive procedure, that is, after the first cost of the insoluble salts and the apparatus, namely, \$50 to \$150, which would be about \$25 for each patient. In other words, if you have six patients a day taking radium water (1,000 *maché* units a day) it would cost about \$50 for apparatus and about \$150 for the radium salts in candles. The apparatus is called an emanator, and consists of a metal or glass cylinder, which may hold from one to three litres, depending upon the size. Near the bottom

¹The first communication on radioactive water in this country was written by the author of this paper and published in this JOURNAL for February 13, 1904.

of the cylinder filled with water is suspended, by a wire, a candle or rod of insoluble radium salts. If we use a one litre cylinder, containing a given amount of radium, in twenty-four hours the radium will have impregnated the water with the necessary amount of gas for a day's use for one patient, namely, 1,000 maché units; if we want 2,000 maché units, two candles or rods (double quantity) of radium salts must be suspended in the water. The water is drawn off through a siphon stopcock, and drunk immediately, as the life of the emanations, either in the natural springs or where the water is made artificially, is very short, half its energy or strength being lost in three days. Hence it must be taken within twenty-four hours of the time it is drawn off or made, in order to get its full physiological effect.

2. The second method of obtaining radioactive water is by making an actual solution of radium bromide—using a minute dose from one to three micrograms to thirty-two c. c. or an ounce of water. From one to three of these should be taken daily. To make one's own radioactive water with an emanator is cheaper, but even using a solution of radium with these infinitesimal doses is not expensive even for people of moderate means, i. e., from fifty to seventy-five cents a dose of 0.001 mgm. to a bottle, or from a dollar to two dollars a day. In some cases, however, larger doses would be necessary.

PHYSIOLOGICAL EFFECTS OF RADIUM WATER.

Radioactive water given by the mouth is absorbed in the digestive tract and finally reaches the blood. It is slightly excreted by the urine and feces, but from recent experiments we find that a large portion is deposited in the bone marrow, and the radioactivity continues for a considerable period of time—from several days to several weeks. Von Noorden says that when radium emanations are taken into the system, the carbohydrates are metabolized and oxidized in increased quantities; that uric acid is excreted in large quantities—even to 100 per cent. more than before the treatment.

Effects on the blood. Under the influence of radium, in water or in other forms, the white blood cells are first increased, then decreased; the red blood cells are permanently increased, at all events during the period of treatment, if not considerably longer. These observations have been confirmed by Von Noorden, Brill, Cameron, and others.

Blood pressure. The blood pressure is gradually reduced by taking internally radioactive water three times a day. In some cases larger doses may be necessary; when used intravenously a marked diminution of blood pressure is observed, even as much as fifty mm., which will last for several weeks or longer by the use of one injection.

Another physiological effect of radium is its capacity for reducing the viscosity of the blood. An examination of these patients shows a marked reduction in the coagulation period of the blood. No doubt on this account it helps to reduce blood pressure; and the same time this physiological effect would contraindicate its use in hemorrhagic conditions—even to omitting its use for a couple of days during the menstrual period. The discovery of the

diminished viscosity of the blood in radium therapy is due to the pioneer work of Saubermann, of Berlin, and Deutelmöser, of Franzenbad. In their conclusions, as the result of experimentation on many patients, they said: "We ascribe the diminished viscosity of the blood to the action of radium emanation, which cleanses the blood in such a way that the improvement in the metabolism considerably diminishes the saturation of the blood by divers materials."

Both these authors hold that radium in moderate doses dilates the bloodvessels and diminishes the viscosity of the blood, and this accounts for a diminished blood pressure and slightly retarded pulse rate, for, as they say, it requires less work by the heart to send thin blood through dilated vessels than thick blood through contracted vessels. Hence the value of radium treatment in arteriosclerosis.

EFFECT UPON FERMENTS.

From the numerous experiments of Doctor Saubermann, Doctor Bickel, Doctor Bergell, and Doctor Newberg, it has been proved beyond peradventure that radium activates to a considerable degree the ferments of the body. These observers found that the gastric, pancreatic, glycolytic, diastatic, and other ferments were markedly accelerated. Saubermann also found that the fermentative processes caused by the action of bacteria were also similarly and strongly affected by emanation.

He says even a mere tyro can repeat these experiments: For example, it is easy, by the use of radium emanation, to show the conversion of starch into dextrose, milk into lactic acid, etc., and grape sugar into alcohol and carbonic acid. It almost seems incredible that so infinitesimal a dose of radium as one one thousandth mgm. should have sufficient physiological effect to bring about the results already referred to.

This should not be difficult to appreciate, however, when we know that one one thousandth mgm. adrenaline will produce a perceptible effect upon the blood pressure. Saubermann further states that human ferments are activated by radium emanation in gas or water, because it does not combine chemically with any other known matter. It does the work just as does a catalytic agent, which we know is capable of starting a chemical change, or activating one already begun. In reality, the chemical action of radium is that of an oxidizer, and where an oxidation takes place from any cause an increase in the total blood activity ensues. From this point of view, life and oxidation are almost synonymous terms. Hence radium emanation is a strongly vitalizing agent. In a word, the physiological properties of radium water or emanation may be said to be due to its power as an oxidizer, where it helps nature to throw off the poisonous waste products, and at the same time activates those metabolic processes by which cell tissue is supplied to the organism.

In a large number of observations it has been noticed that in treating patients with radium water or emanation for various maladies, that they slept much better than before, and while radium is not a hypnotic in the ordinary sense of the word, never-

theless it has a sedative and quieting effect upon the nervous system.

Radium water and emanations may be used with good results in the following diseases:

Rheumatism and gout. Owing to the inhalations of radium gas (niton) and the drinking of radium water at St. Joachimsthal, Austria, the miners, it is said, never have rheumatism or gout. Since the discovery of radium, it has been used more in rheumatism and gout than any other disease except cancer. When used in rheumatic or gouty cases, in doses from 2,000 to 5,000, or even 10,000 maché units per diem, the uric acid excreted is increased from twenty-five to fifty per cent. The amount of urine is also increased. By this marked increase in the waste products of the system we have enforced elimination, or a more active metabolism, probably both. By the radium water treatment, the pains are lessened or abated, swelling is reduced, and there is a decrease of water in the joint, and a partial or complete restoration of the joint to its normal functions.

When the treatment is first begun, usually a slight inflammatory action takes place. The patient probably feels worse for two or three days, the joints are temporarily more inflamed, with some mild fever, and there seems to be a general lack of well being. However, these are the cases which give the best results, for if no reaction takes place, the treatment is not so likely to be successful. The treatment must be persisted in, however, for six or eight weeks.

Further, it must not be thought that good local results can be obtained under the radium treatment, for rheumatoid arthritis, if the joint structure has degenerated or if adhesions have actually taken place. In rheumatism, gout, and other joint diseases, it is best to begin with small doses of radium water, and gradually increase them until a reaction (of pain, slight fever, etc.) is noticeable. If the reaction does not occur, it may be necessary to give a hypodermic or intravenous injection of a solution of radium bromide, using about twenty-five or fifty, even 100 micrograms of radium element.

The following is a summary of the 1,138 cases of all kinds—from various sources—treated over a period of three years. Of these cases, eighty per cent. were benefited or cured. In this series of cases, there were 471 cases of chronic rheumatism, 106 cases of gout, twenty-five cases of rheumatoid arthritis, fifty-six cases of muscular rheumatism. Of the 400 cases of rheumatism, 266 were improved, 105 cured. Of the 106 cases of gout, eighty-nine were improved or cured. In thirty-seven of them the uric acid disappeared from the blood, while under treatment. Some of these patients have been free from symptoms for over a year. In the fifty-six cases of muscular rheumatism, twenty-seven were cured, twenty-two were improved. In the twenty-five cases of rheumatoid arthritis, only eighteen were improved and only one was cured.

From the report of these cases, the fact is certainly established that radium water and radium is a valuable treatment in subacute arthritis of all kinds; in acute, subacute, and chronic rheumatism,

in gout, sciatica, and lumbago. All these maladies are largely due to bacterial infection and auto-intoxication, or an excess of uric acid in the blood; the radioactive water acts as a mild bactericide, as an oxidizer and an activator of improved metabolism. In this latter case, waste material elimination is accelerated, and new cellular matter increased.

SENILITY AND ARTERIOSCLEROSIS.

Arteriosclerosis, or hardening of the arteries, with the accompanying signs of old age, has been treated with some considerable degree of success by natural radioactive waters for many years. Of course it has only been discovered recently that the value of these mineral springs was due to the radium emanation. Doctor Saubermann aptly terms these springs "wells of rejuvenation," and while they contain very little mineral salts they contain a considerable quantity of radioactivity. The brilliant results obtained from these natural sources has been more than duplicated by radioactive waters made to order, or to minute doses of solution of radium bromide. Doctor Lowery and Doctor Plesch, of Germany, have shown that when the arteries of those growing old had calcified, and were accompanied by high blood pressure, radium water or the emanations would produce a dilatation of the bloodvessels, and at the same time reduce the viscosity of the blood. On this account, many persons, who could afford it, visited each year the radioactive springs at Gastein. These men lived to a great age, and manifested great vigor and mental and physical activity. Would it not be reasonable to suppose that by taking radioactive waters in conjunction with observing the rules of health, one should live four or five times as long as it now takes to attain maturity? So that the Biblical three score and ten would no longer be the limit, but it would be a common occurrence for one to live to be a hundred years old. Furthermore, radium when taken internally has a rejuvenating effect, not only on account of rendering the arteries more elastic and the blood less thick, but also on account of some vitalizing influence, due to some favorable effect, probably on the internal secretions. Such competent observers as Kraus, Von Noorden, and Lazarus have shown that radium fluid exercises a favorable influence on sexual potency. In fact, it is now definitely established that the radium water treatment exerts an essentially stimulating influence on the generative glands and reproductive system; that is, in cases where no degenerative changes have taken place in these functions. These rejuvenating effects are produced by prolonged treatment and relatively large doses, from 5,000 to 10,000 maché units per diem.

RADIUM WATER IN MISCELLANEOUS DISEASES.

In spite of the possibility of seeming extravagant in these statements concerning radium water or radium in solution, in the treatment of a variety of other diseases, nevertheless I feel that I should make mention of them here. The *modus operandi* through which the remedial and curative results are obtained, seems rather obscure and largely em-

pirical. Nevertheless, on general principles, the results show that this element, when it is taken through the blood or by inhalation, has the faculty of promoting the growth and multiplication of healthy cells and, on the other hand, assists in the elimination of morbid cells. Thus, the physiological action of radium may be said to be one of anabolism, catabolism, metabolism.

Neuralgia and sciatica.—It is generally admitted that many forms of neuralgia and muscle pains are due to auto-intoxication and disturbances of metabolism. In sciatica, toxins floating in the blood stream finally show a predilection for the sciatic area and thus cause neuralgia in the sciatic nerve and its branches. In these conditions, a rational diet is absolutely essential. Nevertheless, radium in the form of radium drinking water and radium baths is an exceedingly valuable treatment. In a series of cases collected from European literature, the following results were obtained: In 115 cases of sciatica, ninety-one were improved, and in fifty-nine cases of neuralgia, forty-seven were improved.

Insomnia and nervousness.—Von Noorden says that these cases are surprisingly influenced for good by the radium treatment. There is a nerve soothing, which induces sleep. This is probably due to a direct stimulation of the nerve terminals, or indirectly it may be due to its action on the sympathetic nervous system.

Nephritis.—Saubermann, in his investigations, found that under persistent radium emanation treatment, the hyaline and waxy cylinders disappeared from the urine, and albuminuria decreased. This was particularly observed in inflammation of the kidney, accompanied by a decreased output of urine, and also in contracted kidney with polyuria. In confirming the observations of other authors, he is of the opinion that, under radium treatment, an inflamed kidney may be changed into a contracted kidney. In this case, the disease often becomes stationary in its course, and an old person is likely to acquire a tolerance to the albuminuria, and his life is thus lengthened.

Diabetes.—Experimental research has shown that one of the conditions accompanying diabetes is an insufficiency of glycolytic ferments. Furthermore, it has been sufficiently demonstrated that radium emanation acts in the body as a strong ferment and is capable of stimulating the unaffected catabolic ferments to such a degree as to make them perform the necessary work of oxidation. This is shown by increased excretion of carbonic acid gas and increased oxidation of hydrocarbons. Good results have been obtained in diabetic cases by eliminating some of the sugar and starch in the diet, and by use of large doses of radium water, using from 20,000 to 30,000 maché units a day.

In writing this paper, I am indebted to the original researches and writings of Saubermann, von Noorden, Gauss, Wartennitz, Sir Frederick Treves, and others in Europe, and in this country to Dr. Rowntree Cameron, Doctor Littlefield, Doctor Proesch, Doctor Wachsmann, and Doctor Burnham.

240 WEST 102D STREET

DISEASES OF THE EAR AND UPPER RESPIRATORY TRACT AMONG AMERICAN FACTORY WORKERS.*

By OTTO GLOGAU, M. D.,

New York,

Delegate of the State of New York, Third International Congress on Occupational Diseases, Vienna, September, 1914.

Although the prevention of occupational diseases has been regulated by law in most European countries for many years, it is only recently that the United States has concerned itself with the solution of this problem. The tendency of the United States toward State control as opposed to Federal control is chiefly responsible for the fact that matters of this nature have been left to individual State legislation.

The State of New York, whose delegate I have the honor to be, has thoroughly investigated this question during the past three years, and has passed a number of laws relating thereto. The New York State Factory Investigation Commission was created by the legislature in Albany in the year 1911, its purpose being to study working conditions "to the end that such remedial legislation might be enacted as would eliminate peril to the life and health of operatives and other occupants in existing or new structures, and to promote the best interests of the community."

Although the scope of this investigation was of a more general character, I succeeded in interesting the director of the investigating commission, Dr. George M. Price, in the special problem of injuries to the organs of hearing and breathing in industries where dust and noise are present to a large degree. Through the cooperation of Doctor Price, I had the opportunity to examine the ear and upper respiratory tract of workers in such factories and was enabled to make a study of the basic causes of conditions responsible for these occupational diseases. The results of my investigation were embodied in the *General Report* transmitted to the legislature, January 15, 1913.

Before going into detail with reference to my investigation, I wish to summarize in brief those parts of the report above referred to which relate to the occupational diseases under consideration. The full text may be found in the *Second Report of the Factory Investigation Commission, 1913, Volume II.*

More than 3,000 manufacturing establishments, employing over 180,000 wage earners, were inspected by the commission in the years 1911 and 1912. In many of the establishments the conditions of work were found to be excellent; but in a great number, there was displayed a tendency on the part of employers to economize, not only in matters of legitimate expense, but also in space, light, air, and certain other safeguards to the health and lives of the workers.

The industries investigated where occupational diseases of the ear and upper respiratory tract occur in a very large measure, are as follows: 1. Clothing; 2, textile; 3, metal; 4, fur; 5, chemical; 6, tobacco; 7, printing.

1. In the clothing industry, which is largely

*This paper was to have been read at the International Congress on Occupational Diseases in Vienna, but, on account of the war, plans for the congress were abandoned.

carried on in lofts and converted tenement houses, the lack of proper light and ventilation, combined with the dust and noise, are responsible for the frequent occurrence of affections of the ear, nose, and throat. In my own experience, a majority of the cutters and pressers I found suffering from affections of the upper respiratory tract; whereas the operators, from many years' exposure to loud noises of sewing machines, showed affections of the inner ear, many of which were slowly leading to deafness.

2. In the textile industry, the conditions were found to be exceedingly bad. High temperature, impure air, and lack of mechanical ventilation existed in most of the cases investigated. The air was thick with dust and particles of jute and hemp, and the noise was exceedingly great. This bad state of affairs, as reported by the commission, was affirmed by my own investigation, the particulars of which will be found later on.

3. While some of the shops in the metal industry were modern in all respects, most of them showed a considerable amount of dust in the buffing, grinding, and polishing departments, very few of the shops being equipped with a suction system for the removal of dust. Sand blasting was largely done in closed bins or basements by ancient and crude methods without any other protection to the workers than a cloth over the mouth and nose.

4. In the fur industry, a majority of the shops investigated were very small establishments employing from three to ten persons, and mostly situated either in the cheaper loft buildings of older construction, or in converted tenements and dwelling houses. The sanitary conditions were deplorable, the ventilation very bad, no mechanical means of ventilation being provided. On account of the fine dust and particles of fur flying in the air, most furriers suffer from some affection of the air passages. The special examination made by me of the upper air passages and ear of these fur workers led to some very interesting conclusions, the results of which will be found further on in this report.

5. In no other industry are perils to the body and dangers to the health of the workers so many, so insidious, and so deadly as in the chemical industry. On account of the dust, gases, and the high temperature, the upper air passages of the workers are exposed to very great danger. Notwithstanding the impurity of the air of the 359 establishments investigated, only forty-one were equipped with ventilators. Windows and skylights, as a general rule, were tightly closed, and the special ventilation apparatus either out of order or entirely worthless.

The dust in most chemical industries is especially dangerous on account of the fact that it is chiefly of mineral origin; it is, moreover, often poisonous, and thus produces, not only the irritating effects of common dust, but also the toxic effects of the poison. In spite of the dangers to the respiratory tract of the workers in the chemical trade, there is no industry in which there is apparently less effort made to prevent the production of the dust and its coming into contact with the employees. Respirators, so essential as a preventive against affections of the air passages, were found in but few establishments, few of the concerns supplying them for their employees, and still fewer making their use compul-

sory. Only in isolated cases were they in regular use.

How much the use of protective appliances in dangerous trades can be of value, may be judged by the marked reduction in industrial diseases and number of accidents in establishments where they are universally and uniformly used.

6. In the tobacco industry a vast majority of the workers are women and girls. Formerly carried on in tenement houses, this work, on account of the tenement house cigar law, together with the introduction of machinery, is now almost entirely conducted in large factories employing hundreds of hands. The dangerous elements in tobacco factories are the dust, fumes, and the odors of the tobacco. No attempt has been made in the majority of the establishments to remove these dangerous elements or even to minimize the evil. Although with very few exceptions, windows were the only means of ventilation in the factories inspected, they were kept closed in most of the establishments, even in summer. A certain amount of humidity in the air is necessary in order not to have the tobacco too dry—hence the desire to keep the windows closed.

Of the 600 female workers examined, 153 were found to be suffering from affections of the throat, seventy of the nose, twelve of the larynx, seven of the ear, four had tonsillitis, fifteen chronic bronchitis, eight phthisis, six acute bronchitis, and one pleurisy.

7. In the printing industry, the sanitary conditions were found in a majority of cases to be deplorable. The dust and the gases of the lead employed in the printing industry, cause not only the much dreaded lead poisoning, but also local affections of the air passages.

The special investigation made by me on occupational diseases of the ear and upper respiratory tract, in the report transmitted to the New York State legislature, January 15, 1913, shows the necessity of legislative measures for the prevention of such diseases. This class of occupational diseases is characterized by such slow development that it hardly makes itself evident to the sufferer until it has progressed to such an extent as to be practically beyond the possibility of successful treatment.

While it is true that the new workmen's compensation law (one of the most, if not the most important protective measure for workmen inaugurated during the present legislature) offers adequate compensation to those who meet with accidents in their employment, this law leaves entirely out of consideration the helpless victims of diseases caused by the noise and dust of the trades in which they are employed, most of which could be prevented by proper legislative steps.

While I have thus far had the opportunity to examine only a very few of the industries where occupational diseases of the ear and upper respiratory tract occur, it is my desire to extend my investigation to all trades where dust and noise cause suffering to the employees, in order to present to the legislature proof of the necessity for preventive measures for the better protection of the workingman.

Only those factories were investigated in which there was excessive dust, dirt, or extreme noise. Two ostrich feather factories (examined forty-five

girls and four men), three fur factories (examined fifty girls and twelve men), and one cordage mill (examined thirty-four girls and ten men) were investigated. Altogether 155 employees were examined in these six factories. In the small factories all the employees were examined; in one large fur factory and in the cordage mill it was possible to examine only a few.

In order to facilitate the work, an examination card was used. The examination was thorough, taking on an average twenty minutes for each individual.

COPY OF CARD USED IN EXAMINATION OF THE WORKERS IN OSTRICH FEATHER AND FUR FACTORIES AND IN CORDAGE MILL

Line.....Factory No.....
 Name.....Check No.....Sex.....Age.....
 How many years in this line.....What line before.....
 General history.....
 Aged: Previous history:.....Diagnosis:.....
 Operations.....
 Mouth breathing.....
 Colds.....
 Discharge.....
 Headaches.....
 Loss of smell.....
 Present state:.....Right.....External ear.....Left.....
 Turbinates.....
 Septum.....
 Right.....
 Left.....
 Inferior.....
 Middle.....
 Sinuses.....
 Particles of working material in nose.....
 Adenoids.....
 Other findings.....
 Diagnosis:.....
 Throat: Previous history:.....
 Operations.....
 Sore throat.....
 Present state:.....Disturbances of equilibrium.....
 Tonsils.....
 Abscess.....
 Ulcers.....
 Pharynx.....
 Particles of working material in throat.....
 Diagnosis:.....
 Trachea.....
 Larynx.....

An electrically illuminated speculum and pharyngoscope were used for the examination of the ear, larynx, and nasopharynx, and an electric headlight for the examination of the nose and throat. A pocket battery provided the necessary current.

The organ of hearing was tested by means of three tuning forks (the lower, middle, and high tuning forks of the Vienna ear clinic), and different tests were applied to establish a differentiation between the affections of the middle and inner ear. The distances for the perception of both conversation and whispered voice were also noted. The following is a table of the results of the examination:

TABLE SHOWING RESULTS OF EXAMINATION OF 155 WORKERS AS TO AFFECTIONS OF THE EAR AND UPPER RESPIRATORY TRACT.

Factory examined.....	Ostrich feathers.		Furs.		Cordage mill.		Total number examined.....
	I.	II.	III.	IV.	V.	VI.	
	Number examined.			Number examined.		Number examined.	
	15	34	10	13	10	34	105
Diseases.....							
Rhinitis.....	15	31	8	9	13	8	128
Deformities of the septum.....	11	18	1	10	17	9	86
Pathological changes of the turbinates.....							
Hypertrophies.....	6	12	2	8	8	2	38
Degenerations.....	2	3	7	8	24	1	46
Adenoids.....	1	1	1	1	3	1	7
Sinusitis.....	1	1	1	1	1	1	6
Pharyngitis.....	13	27	6	8	12	3	113
Tonsils, hypertrophy.....	4	13	5	2	2	2	28
Middle ear catarrh.....	7	12	2	11	13	9	54
Inner ear affections.....	1	1	1	1	1	1	6
Particles of working material in nasal cavity.....	10	30	8	11	12	6	110
Particles of working material in throat.....	9	27	1	7	25	1	61
Laryngitis.....	1	1	1	2	1	2	17

*A case of hysterical deafness.

I will now summarize the results of my investigations.

The upper respiratory tract and ear are undoubtedly damaged by the dust that contains minute particles of ostrich feathers, fur, and cordage materials, and by the noise found in the cordage mill.

In several instances, the nose was entirely filled up with dust, while in others only the septum or the turbinates were affected. In 119 of the 155 workers examined, particles of working material were found in the nose; in ninety-one cases such particles were lodged in the throat.

When minute particles of dust irritate the nasal mucous lining for any length of time, the respiratory organs within the nose, the so called turbinates, are damaged. The turbinates consist of spongy tissue; their function is to filter, warm, and moisten the air. The pathological changes of the turbinates brought about by the irritation of the workshop dust consist of hypertrophies or degenerative processes with either the formation of polypi or complete atrophy. By any of these conditions the function of the turbinates is interfered with, and the breathing space within the nose (in hypertrophies) is reduced to a minimum.

Among the 155 workers examined, thirty-six hypertrophies and sixty-five degenerative processes of the turbinates (mostly polypi and in only a few instances atrophies) were found. By these changes of the soft tissues within the nose normal breathing becomes impossible, especially when congenital or acquired deformities of the bony wall or septum, which separates the two nasal cavities, are present. These deformities consist in most instances of deviations (bulging of the cartilaginous and bony septum to one side or the other) or of bony outgrowths called spurs. Such deformities of the septum were observed in eighty-seven cases. The soft and bony nasal obstructions, by compelling breathing through the mouth instead of through the nose, help to bring about the development of adenoids in young persons (fourteen cases) and later on inflammation and hypertrophy of the tonsils (twenty-eight cases) or chronic inflammation of the larynx, etc. (seventeen cases).

A chronic inflammation of the mucous lining of the nose, rhinitis, was noticed in 128 cases, and a chronic inflammation of the mucous lining of the throat, pharyngitis, was detected in 115 cases. By the affection of the turbinates the adjoining nasal accessory cavities, sinuses may become involved and show suppuration (seven cases of sinusitis).

The ear, as is well known, is connected with the nose by means of the Eustachian tube. Through this channel, the ear receives the amount of air necessary to enable it to perform the normal function of hearing. If the nose is stuffed up on account of the soft and bony obstructions, the ear is not properly provided with air and dries out, thereby causing chronic middle ear catarrhs with consequent impairment of hearing (eighty-four cases).

Among the furriers, where the changes of the turbinates were mostly of the degenerative type, the middle ear catarrh (thirty-three cases of the sixty-two examined) had in four cases already progressed to an affection of the inner ear. (The one case of hysterical deafness does not belong to this class.) Such progression is the more remarkable because

there was very little noise in the factory. The inner ear—the acoustic nerve proper—may in the course of time be affected by the pathological changes within the nose and the middle ear.

In the cordage mill the air was filled with minute particles of jute, hemp, etc., and there was excessive noise due to the simultaneous working of hundreds of machines. Of the forty-four workers examined in this mill, thirty showed rhinitis, twenty-nine pharyngitis, twenty-seven pathological changes of the turbinates (six hypertrophies and twenty-one degenerative processes, such as polyps, etc.). In twenty-eight cases mill dust was found in the nose, and in twenty-one in the throat. In twenty-eight instances catarrh of the middle ear was noted. In every one of the forty-four cases, there was some affection of the acoustic nerve. In six of the girls this affection was just beginning and could be detected only by the different tuning fork tests, the girls themselves being entirely ignorant of their ailment. In the other cases it had already progressed to a more or less pronounced degree. The hearing, therefore, was more or less impaired in all these cases.

The foregoing affections of the nose, throat, middle and inner ear were in many instances not known to those afflicted. The workers gradually become accustomed to the action of the dust and noise. The above named ailments of the upper air tract and the ear develop so slowly that the sufferer becomes aware of them only when there arise such symptoms as pain, pus, fever, severe headaches, complete obstruction of the nose, and almost total deafness. At such a stage of the affection it is usually too late to restore the respective organs to their normal function.

PREVENTIVE MEASURES.

The following are suggested: In order to minimize the dust evil, mechanical exhausts should be installed in all dusty factories. In addition to such special devices the workers should be provided with proper respirators. Those in common use are too clumsy and stop the workers from conversing freely. I am now experimenting on a small respirator, which consists of a very thin metal sieve so constructed that it will protect the wearer from even the smallest particles of dust, and not interfere with speaking or breathing.

Regular medical examination of the workers in the dusty trades should be compulsory. Every employee should be examined when he first enters the factory, and if necessary should undergo medical or surgical treatment in order to restore normal and nasal breathing. He should furthermore be examined every six months in order to arrest the development of affections of the upper respiratory tract and the ear.

If it appears that the impairment of hearing due to the factory noise has progressed to such a degree that deafness may sooner or later result, the employer should transfer the worker to a department of his factory where there is comparatively no noise.

Experiments upon animals and examinations of artillerymen have proved that a great part of the air concussion is transmitted to the acoustic nerve by the ground on which the individual stands and not

by the air alone. The movements of the machine are imparted to the floor and thence to the body of the worker, and in this way reach and affect the acoustic nerve. An excellent preventive measure would be the isolation of the worker from the floor by the use of heavy shoes with rubber soles or a thick rubber floor covering. The worker should also wear some easily attachable sound damping appliance in the shape of a cap. Cotton in the ear will close the ear canal, but will not prevent noises from reaching the acoustic nerve by means of bone conduction.

The workers in the trades in which there are loud noises and excessive dust should be educated as to the dangers of their occupation, and should be trained to the use of preventive measures, and also to undergo occasional medical examination of the ear and the upper respiratory tract.

While the preventive measures suggested will reduce the number of occupational diseases of the organs of hearing and breathing, not until the legislature enacts the necessary laws, will the workingmen, as a body, receive the protection which the importance of this subject demands.

Through the workmen's compensation law, which went into effect July 1, 1914, the employee is protected against loss through accidental injuries sustained in the course of his employment, but no protection is given him for loss sustained through occupational diseases, such as impaired hearing and damage to the respiratory tract. From the facts adduced from my investigation, it must be evident that a law should be enacted, protecting the employee against damage done to such valuable functions as hearing and breathing. Or, at all events, the employer should be held responsible for such occupational diseases of the ear and respiratory tract as could be prevented by proper protective measures.

That the State of New York has shown a keen interest in occupational diseases of the ear and respiratory tract, is evident from the booklet issued by the New York State Department of Labor, *The Reporting of Industrial Diseases*. This booklet has been placed in the hands of every physician in the State. Although the physician is required by the law of 1911 to report only six out of a large number of occupational diseases, the Department of Labor, in its division of occupational diseases, makes a special subdivision of diseases of the air passages and of the ear. At the same time, the different kinds of dust, gases, vapors, and fumes are described that are harmful to the air passages; and the booklet also covers the causes of excessive noise in such trades as those of boiler makers, riveters, gunners, etc., which frequently result in permanent deafness. Physicians of the State are especially requested to report all cases of occupational diseases of the ear and air passages, so that the legislature may be in possession of complete statistics, to enable them to bring about such measures as may be necessary for the proper protection of the workingman.

I am deeply indebted to Dr. George M. Price for the opportunity afforded to me to carry out my investigations. Special thanks are also due to Mr. Arthur Williams, president of the American Museum of Safety, and Dr. William H. Tolman, the director, for extending to me the facilities of the

museum. The unique collections of the museum, with its hundreds of exhibits of different kinds of dust found in the industries, together with their photographic and microscopic pictures, the pathological specimens of the affected lungs, and the collection of the most important preventive apparatus, such as respirators, etc., were of considerable help to me.

The increased interest shown by physicians and public organizations, together with the activities of the Department of Labor, and of the Factory Investigation Commission, give hope that in the very near future laws will be enacted, not only to protect the workers from occupational diseases of the ear and air passages, but also to compensate them for such loss as may be sustained through damage done to the organs of hearing and breathing.

1320 MADISON AVENUE.

THE EXTRACTION OF THE CATARACTOUS LENS IN ITS CAPSULE.*

As Practised in the Coltea Hospital, Bucharest, Rumania.

BY HOWARD F. HANSELL, M. D.,
Philadelphia.

I describe here the operation of the extraction of the lens in its capsule as it is performed in the great ophthalmic hospital of Bucharest, by Professor Stanculeanu and his assistants.

I am within truthful limits when I state that ninety per cent. of cases of extraction of immature cataract by any method which leaves the capsule behind will be followed by retained cortex or lens masses. In some of these cases, fortunately not the majority, the unexpelled cortex leads to purulent infection, infective iridocyclitis, and perhaps to glaucoma. We agree, I believe, that the ideal operation is the extraction of the lens in its capsule. Not only are the evils above referred to avoided, but the patient is spared the months or years of semiblindness while waiting for the lens to be sufficiently hard or the vision sufficiently bad to warrant operation. Again, the age of the patient is not a positively safe guide in leading to the determination of the consistence of the lens. The commonly accepted axiom that the cataractous lens in a patient sixty years of age or more, is hard and its cortex easily freed from its capsule, has many exceptions. Even at seventy years of age the extraction may not be complete. The extraction of the lens in its capsule is, therefore, the great desideratum both for immature and mature cataracts, for even though the lens is hard and may come away entire, the capsule remains as an obstacle to a clear pupil and requires a secondary operation.

Stanculeanu's operation described by himself¹ is briefly, as follows: "On the evening before operation (he usually commences his operations at 8 a. m.), I drop a one per cent. solution of homatropine into the eye to be operated on, to dilate the pupil. I make the incision in the limbus corneæ and

it is somewhat larger than is usually made. Then a sickle shaped forceps, the size of the Graefe iris forceps, is entered into the anterior chamber. In order to make its entrance easy, I introduce it closed, in the perpendicular position. Having entered the chamber, I open the forceps, and having laid the round sides of its branches on the lens capsule, I press a little and endeavor to grasp the largest possible fold of capsule between the branches. By wide horizontal and upward and downward movements the zonula is ruptured. When I feel the lens has been dislocated, I let go my grasp of the capsule and withdraw the forceps. With pressure by two spatulas, I endeavor in the usual way to express the lens. The iris is replaced in its former position and eserine one in 100 or one in 200 is instilled."

In 1912² he modified the procedure by omitting the homatropine instillation and substituting iridectomy. He also modified the forceps by introducing a small groove on the inner side of each branch. He believed that the danger of tearing the capsule is lessened by the new model. He reports 240 cases, the patients ranging in age from forty to ninety-three years. They were not selected cases excepting with regard to the probable consistence of the capsule as determined by examination with electric light and magnification or the Hartnacks loupe. When the capsule is transparent, it is of normal consistence and in sixty to seventy per cent. of the cases operated in, it may be grasped and the lens dislocated. The more opaque the capsule, the thicker and the more difficult it is to grasp.

The operation is not suitable for the hypermature cataract, that with a small nucleus and milky cortex. It is almost impossible to pick up a fold of capsule because the branches of the forceps glide over it. It is here that the usual operation is more successful. The corneal section may be small and the fluid cortex easily, and in most cases thoroughly, expelled. Even if left behind, it is soon absorbed by the use of diionine and it is not inclined to cause iritis. Stanculeanu remarks that the older the patient, the more frequently successful is his method, and, further, that the unsuccessful cases were those in which the capsule tore; those in which the capsule could not be grasped; and those in which the capsule, as a result of inflammatory action, had become attached to the fossa. Among 137 patients, eleven had postoperative hemorrhage; two had panophthalmitis; three loss of vitreous (two slight, one serious); two vitreous opacities; and three incarceration of the iris in the wound.

When the capsule tears, which means failure of this special method, the operation may be completed in the usual way. The single disadvantage is that the central area of the capsule may not now be removed by the toothed capsule forceps.

In Professor Stanculeanu's presence and under his direction, I was permitted to perform this operation three times and to witness, at close hand, the operation as performed by himself and his assistants, twenty-eight times. I should like briefly to give the salient points and to sum up the conclusions I have felt justified in drawing.

1. Thorough anesthesia by cocaine four per cent.,

*Address of the chairman of the Section in Eye, Ear, Nose, and Throat Diseases of the Medical Society of the State of Pennsylvania, Pittsburgh, September 22, 1911.

¹Transactions Heidelberg Congress, 1910.

²*Klinische Monatsblätter für Augenheilkunde*, March.

instilled six times at intervals of four minutes. In the first and last instillation the cocaine is combined with adrenaline, one in 2,000.

2. The conjunctival flap: In every case a conjunctival sliding flap is made, either according to the usual method of picking up the conjunctiva in the horizontal meridian three or four mm. from its attachment to the cornea, with the forceps, making a small opening through which one blade of the curved conjunctival scissors is inserted, incising the membrane as far as its vertical meridian with one snip, and finishing the incision by a second stroke of the scissors, ending this cut at a point corresponding to the point of entrance and 180° from it; or according to the method suggested by Dr. Elinor Puscarin, one of the assistants. She commences the incision at the upper meridian and divides

the conjunctiva laterally and upward toward the inner and outer angles of the superior cul-de-sac. After making the incisions, the conjunctiva, without its underlying

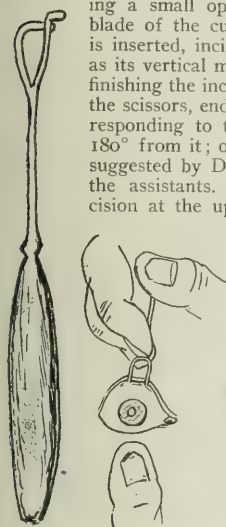


FIG. 1.—Hook for elevating lid.



FIG. 2.—Forceps for grasping anterior capsule.

connective tissue, is separated by repeated snips of the scissors from the bulbous, in each method as far as is necessary to supply ample covering for the upper third of the cornea. Stanculeanu prefers the method first described, and rather insists that the flap shall be made with two instead of several strokes of the scissors. Finally, a suture is inserted in either side, the knot loosely tied, and the loops of thread are pushed out of the way. He states that the advantages of the flap are preservation of intact vitreous, rapid closing of the corneal wound, prevention of entrance into the anterior chamber of foreign or septic material, and a safeguard from accidents during convalescence. The disadvantages are the addition of one more step to the operation of extraction and the possibility of interference by the threads with the use of the knife. The making of the flap prolongs the operation, but it cannot justly be considered a complication since it precedes the opening of the ball. The threads are never a hindrance unless the operator has forgotten to push them to one side, an unlikely omission. Hemorrhage from the conjunctival vessels is sometimes annoying, notwithstanding the free use of cocaine and adrenaline, and after the section of the cornea the blood may percolate into the anterior chamber, from which it is with difficulty expelled. The hemorrhage is never serious nor does it compel the substitution of any other method for the safer extraction.

3. The use of the double hook for elevating the upper lid and the depression of the lower lid by the first finger of the assistant's right or left hand respectively, substituted for the speculum (Fig. 1): With a trained assistant who is intent on his duties and does not permit himself to be distracted for a moment, this method may be superior to others, but the commissure is not wide, the position of the hook must be slightly changed as the incision is being made, and when the eyes are deep set, the field of operation is too small. My own preference is for the speculum until after the iridectomy, and the elevator for the dislocation and expression of the lens. Thus pressure on the ball at the critical moment is avoided, disastrous contraction of the lids prevented, and the danger of vitreous escape lessened. The method adopted depends, however, more upon one's habit of operating than upon the actual superiority of either.

4. The incision: The corneal section comprises one half or nearly one half of its diameter, and it should be made in the corneal rather than the scleral limbus. The knife is introduced in an oblique direction, brought to the horizontal before making the counter puncture, thrust through at the corresponding point, and with the same thrust by lowering the handle, the nasal part of the incision is partly made. Two or three upward, sawing movements complete the section. There is no particular disadvantage in the true corneal incision, provided the section is large enough to permit the easy passage of the lens. Healing is as prompt as when made in the scleral limbus and the tendency to sepsis is no greater.

5. Iridectomy: A small piece of iris is excised in almost every case. The exceptions are when the pupil is widely dilated and the excision of a piece of iris to facilitate the escape of the lens seems superfluous. This step of the operation presents nothing unusual.

6. The removal of the lens in its capsule: Two pairs of forceps should be available, the larger for

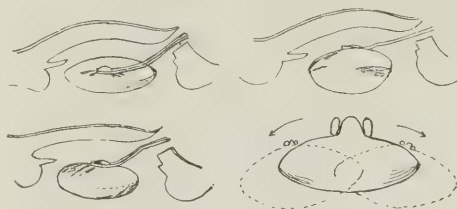


FIG. 3.—Three positions of lens.

dislocating the lens after iridectomy, the smaller for the simple operation (Fig. 2). It may happen that the former slips over the lens and will not grasp the capsule, and before resorting to the cystotome or toothed capsule forceps, the effort is made to dislocate with the latter, and often successfully. Occasionally the manipulations have lessened the resisting power of the capsule, and it ruptures, either while the lens is still lying in its fossa or while it is being expressed. This accident is not in any sense a serious one; the operation proceeds exactly according to the usual noncapsular extraction method. For example, in one case both forceps failed to dislocate

and the smaller pair tore out most of the anterior capsule and the lens was readily expressed; in another, the lens was dislocated with much difficulty and the use of both forceps; in an immature choroidal cataract the lens seemed to be bound down and could not be dislocated. The corneal section was enlarged with iris scissors and a thin flat nucleus was expressed, leaving much cortex. In a woman seventy years old the lens was swollen and the anterior chamber shallow; incision entirely corneal; no iridectomy because the iris could not be grasped; dislocation impracticable; a small piece of anterior capsule was torn out and the lens and cortex were perfectly expressed.

7. Dislocation of the lens: This procedure consists of four distinct movements as follows: Two lateral, the first indifferently nasal or temporal, forcible enough to bring the lateral periphery into the area of the dilated pupil; downward and finally upward and forward (Fig. 3). By the last movement the superior periphery is brought close to and in line with the corneal cut. Expression is performed with the spoon below and spoon or spatula on the sclera behind the cut. The spoon is applied to the lower vertical meridian of the cornea just above the limbus and the first pressure is directly backward in order that the superior periphery of the lens may present at the section. The spoon is now shifted to the lower limbus and the lens gently and uninterruptedly expelled.

8. The toilet presents nothing unusual.

9. The final step is to draw the conjunctiva by means of the threads over the upper third of the cornea and to knot them. Both eyes are bandaged and the patient is put to bed.

Two comprehensive conclusions seem justifiable: First, Stanculeanu's operation is to be recommended only in uncomplicated senile cataracts, both mature and immature; second, it is not adapted to the extraction of hypermature cataracts.

1528 WALNUT STREET.

CONTINUOUS DROP IRRIGATION FROM A THERMOS BOTTLE.*

By NATHAN G. BOZEMAN, PH. B., M. D.,
New York.

Constant dripping from any bottle is as simple in principle as the thermos bottle itself. My interest in working out the construction here presented arises from the fact that for a number of years I have been using small quantities of water, from half an ounce to an ounce a minute, for continuous irrigation and suction, and some time since I succeeded in making the process automatic by means of a constant outflow bottle, an apparatus which demonstrates the elasticity of atmospheric air.¹

By means of the drop bottle here depicted, a volume of water can be segregated and made to fall in drops into a large vertical tube resembling the glass burette used in chemical laboratories; after which the water becomes absorbed or diffused at the extremity of a small rubber tube, suitable for

injections or irrigation, which is attached below. By referring to the illustration it will be seen that an open vertical tube is set in the metallic cap of a thermos bottle, and one eighth of an inch beneath it is a closed tube which is an air chamber and dropper. The upper end of the latter is perforated by a circular orifice (area 0.000829 square inch, which admits a No. 7 sewing needle), and by means of a screw thread it can be depressed.

From the bottle, when filled with hot water, suspended, and tilted to drain it, the flow begins through the circular aperture, emptying the vertical tube first; then air enters in bubbles, and

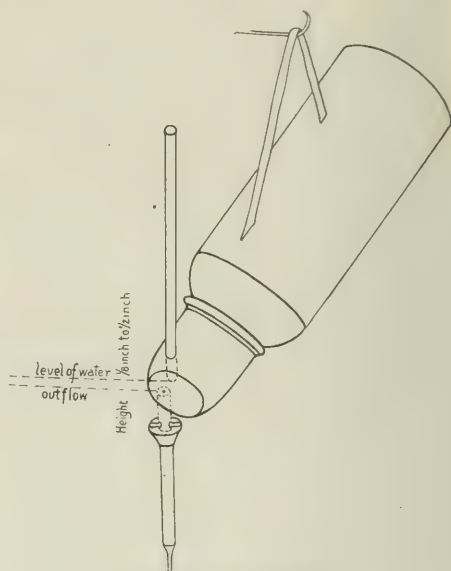


FIG. Bozeman's drop bottle.

evenly in drops the bottle is evacuated. The tube contains only air when the bottle is partially filled, though the interiors of both are subject to the same atmospheric pressure. They are communicating vessels, but are not at equilibrium. The force which expels the water from the bottle is that of a column of water from one eighth to one half inch in height. The height of the fluid in the bottle may be said to remain fixed, and by this is meant that when air enters from the open vertical tube, the column is formed, and it extends to the level of the circular orifice, which is changed only to obtain the desired amount of outflow. The efflux is proportional to the square root of the height. Thus, one thirty-second of an inch gives thirty minims, one eighth of an inch, sixty minims, one quarter of an inch, about eighty minims, and half an inch, two drams. Horizontal on a shelf or table is the best position for the bottle on account of the stability thus secured, though there is a residue and the number of drops a minute is slightly less than it would otherwise be, because the point of exit is

*Read before the Lenox Medical and Surgical Society, January 23, 1915.

¹An Air and Water Irrigator and Drain for Prolonged Douching in Deep Cavities, NEW YORK MEDICAL JOURNAL, May 27, 1894.

nearer the level. It is important that the vertical tubes in the cap of the thermos bottle should both have a constant calibre or more; it should be seven sixteenths of an inch, the aim being to avoid capillarity. The writer takes a certain amount of pride in the originality of this device, and feels assured that it will prove to be of considerable practical utility.

25 WEST EIGHTY-THIRD STREET.

THE NATURE AND PATHOGENESIS OF EPILEPSY.

By L. PIERCE CLARK, M. D.,
New York.

(Concluded from page 573.)

CASE VI is that of a girl, aged eighteen years. She had a "teething spasm" at one year of age, a second and similar attack one year later. The childhood was uneventful aside from chronic constipation. She had her first grand mal attack at twelve years of age. Her disease was of classic type with tongue biting; petit mal attacks occurred daily six months before the grand attack.

At school she learned fairly easily, but had poor concentration. She was a quick, impulsive child, very fond of getting her own way, and quite determined to rule. She always was a tomboy, overactive, and played little with dolls. She was capable with tools and could easily learn any kind of handicraft in which she took an interest, but could not easily learn the distinctly feminine occupations such as sewing and housework. She was daring and courageous, especially in riding horses for which she had a passionate fondness. She excelled at tennis. She was very fond of animals, but was often cruel in their care. She was much more executive than imaginative. In most personal affairs she was self reliant and never courted the opinions of others. She was not the least sensitive nor seemed to care much what others might say or think of her. She had a rather deep seated antagonism toward the brothers, and the parents, especially against the mother, which continues to the present. She was easily teased and angered, but in suppressing it she bore a grudge "beneath the surface" for days, until an opportune time came when she discharged the affect with a good deal of feeling of getting square (revenge). As she grew up she spent her energies in a desultory sort of way, taking up one thing and then another, really mastering none. She often liked to pose as knowing deep and profound subjects in philosophy and historical movements; to be shown up incensed and embittered her. She had an extraordinary conceit and was given to self admiration. She was very vain and proud of her personal appearance and of the social prominence of her family. Usually she is not particularly honest with herself, but is keen on the faults of others. She also blames others for her faults. She never makes much of pains and bears them remarkably well. She was always very sociable among a certain set for a time—that which she considers equal or superior—but rather snobbish toward others; she treats the individual members of such rather cavalierly or ignores them entirely. She treats servants badly and they have always disliked her. Consequently her range of comradeship outside the few is not large and she has felt constrained, shut in, depressed, and out of sorts with the world in general. She is generous in many small things which call for little personal sacrifice, but in the larger issues of selfishness she is wanting and often requires frequent change of nurses who have to accommodate themselves to the difficulties of handling the case. She doesn't go out of her way to be offensive, but she shows no inclination or tact in dispelling the ill feeling engendered by beating others at her favorite games. She is lacking in feelings of a good sport and takes defeat in a very nasty manner. She cannot cooperate with others unless she is to have the mastery or leadership. She is very stubborn and set in her opinions and has rarely been known to give in. One who points out her mistakes is considered a hostile individual. She often heartlessly

squeezes the last drop of anguish from the hearts of her gentle parents. She desires conquests, submission, and obedience at any cost and will go any length to get it. There is a lustful pride and pleasure in all such acts. She apparently never forgives or forgets (a "gaddy" in an epileptic setting). As a child she never gave in to reproof and when reprimanded used to run away from home to avoid the slight punishments such as spanking or being sent to bed. She never "let on" that she was humiliated or that she suffered in any of the little parental acts of discipline. She was never bashful or shy. She got on well as a youthful girl in an atmosphere among people who loved her dearly and where she was treated as an only child. She was the only daughter, being the youngest in a family of three. When but ten years old she domineered over the servants to such an extent that she was not allowed to give even simple orders; she never greeted them in the morning or on retiring at night. As regards her cruelty to animals, whenever she was reprimanded for any trivial act she used to take it out on the dogs and cats. She beat them with whips and sticks until they howled and ran from her. She overcame this desire for cruelty in part when one of her favorite dogs was accidentally killed before her eyes. She has an intense jealousy, shown in an active and passive manner. She is mostly a shut in type, and rarely unburdened herself to other people. She is not demonstrative, but is fond of others' affection and likes admiration. She has always had a good deal of curiosity. Her mood is usually rather one of depression, she thinks the world has not treated her well, she has a sort of feeling that she has been thwarted and robbed of life. She was not particularly religious and is not much inclined that way, yet takes a superficial view of it, studies it for what she can get out of it; the service part of religion, the helpful kindness of it, appears not to have impressed her.

One needs to go over but a part of the foregoing delineation of character to realize that this is the classic temperament of the epileptic laid down in the textbooks *en masse* for all. One sees in it the salient features of a strongly egotistic, superabundantly energized person, selfish, cruel, narrow, and an unlovely character. On the surface she is fairly pleasant, somewhat repressed, a superficially clever individual who observes and keeps many of the daily conventions of life, but who in the inner life is really in a seething foment of cruelty and hate toward all the world. She is one who also worships at the shrine of her own body and soul (narcissistic and sadistic). We can almost prophesy what the dream settings of such an individual shall be.

In the dreams she subjugates men and drives all women out, proposes to the men, dreams she is a Catherine de Medici, makes settings in which she preaches to large congregations, and wisely sets the moral codes for an expectant but stiff necked people. She goes automobiling, driving the machine herself, and the men and women take a back seat. She goes to plays and identifies herself with the one who slays and gets her own way. She is the central figure, receiving gifts and homage from all. In others she is Cleopatra in the triumph of subjugating Anthony. The mother is killed repeatedly by automobile accidents, drowned, or lost in the deep woods, etc. She is often engaged and occasionally married, but soon divorced and is then joyously happy. She often eats forbidden foods, sweets, and even smokes and drinks at her own pleasure. Simple childlike wish dreams are common. While consciously she is in such rivalry to her own sex and seeks favor from the opposite sex, in the dream she usually intimately identifies herself with one of the nurses, a friend, or one of two relatives; all the dream women are older than she, but the supreme and omnipresent dream is the final personal conquest over both men and women. The men come and go indifferently in the dream, simply vanish from sight without anyone knowing where nor how they went (difference), and the women are made subjects to her control wherein she herself is the beneficent dispenser of life and happiness. In some dreams she rescues herself from almost impossible situations. The all powerfulness in which she metes out fate and pitilessly exhibits cruelty to those who offend her are the standard dream types.

In the history of the first petit mal we find that the first attacks occurred at a height of a nervous tension when she had been repressed and reprimanded by one or the

other parent, usually the mother. She says, "I could always control these attacks if I really wanted to, but I let them come up. It was a kind of gratification, I think, to something inside me. I let them come and then I felt better. Afterward I felt quiet, soothed, and free from tension. Yes, they were a deep rooted satisfaction to my soul. While I envy my mother and have looked to her for guidance, I have always felt antagonistic to her and since growing up have a desire to override her decisions." She always has attacks when there is a parental, nurse's, or physician's order to be obeyed to which she is in opposition. They often occur when there is no antagonistic conflict, when things "don't go right," when life doesn't seem satisfying and has no "personal gifts" for her. Then she feels nervous and picks a controversy with the nurse, makes a characteristic revolt, tries to supersede the nurse's authority by going direct to the physician or mother, and then, being unsuccessful in these exploits, she works herself into a rage of hate against everybody, and either has a dream of terrific destructive violence in which the hated individuals are destroyed or she has an attack; or if the cause is great enough she has several nights of conflict and then a grand mal attack. The nurse reports "her disposition is nearly angelic after two grand mal attacks." The delay of the menstrual period or its being scanty increases the "nervous tension" and attacks then occur; the two phenomena in such cases often work reciprocally. That the menstruation is most frequently scanty, delayed, and irregular in epileptics, is a matter of common observation. Our patient from earliest life has had a habit of chewing her tongue when under great nervous tension. In the sadistic dreams she often wounds her tongue, quite as she does in the minor attacks. She says, "I know if I don't get square with my conflict against the treatment orders (diet, punctual exercise, etc.), I will have an attack. Many times at present I choose the attack rather than to "give in." I can thus get the (hate) anger out of my system and save my being obliged to give in. Many times I like that way best. I should dislike to be well and be a person of no fixed belief or opinions of my own" (said with a great deal of conviction and emphasis).

To summarize Case VI, we have a typical idiopathic grand mal epileptic who is an ideal egotist, of self worship (narcissism), who has an intense fixation on her own sex with whom she plays the active homosexual role of control (the exact opposite to Case I), and in whom the sadistic qualities (cruelty and lust) come out in the dream and in actual everyday life; who can drive the dreams and actual conflicts into attacks if she so desires, or when the dreams and personal gratifications are not large enough avenues for the discharge of the libido, has superadded attacks. The attacks and dreams both serve as a wide range of satisfaction to the ego in which a state of *Allmacht* prevails. The motivation in her dreams and attacks is the same in causation, setting, and the after release. They are strivings of wish fulfillment of the libido and at bottom have a sexual content of an auto-pleasurable sort. One needs to go far in the proper treatment of such a case both in the physical and mental settings of the life regimen; yet one need not despair of accomplishing much in such a case as many changes have already prevailed.

CASE VII is that of a girl, aged twenty-three years, who has the appearance, behavior, and personality of a person of sixteen years old. She has had grand mal and petit mal attacks since the fifteenth year of age. The grand mal seizures occur about three or four times a year with tongue biting, etc., while the petit mal sensations occur usually every two or three weeks in series of three to eight "sensations." In the sensations the patient stands still, the pupils dilate, the face is pale, she talks in a silly manner, repeats some phrases like "Oh yes, yes; yes, I am all right; yes, certainly!" They last for three or four seconds only. The recovery is without confusion or depression, and the patient resumes her previous occupation

without delay or diminished vigor. Just before the grand attacks the sensations increase in frequency and severity until the severest type of attacks, classic convulsive fits, occur. There is nothing in the history of the disease to make one think that the sensations are other than smaller nervous discharges of ordinary grand mal epilepsy and that all the seizure episodes make up the usual type of the disease. A strong neuropathic element is present in the mother's family, of which at least one member suffered from the disease. The mother was thirty-three years old at birth of our patient. She was one of twins and the other died at birth. Labor was dry and instrumental and our patient was a blue baby for several hours after birth. She weighed six pounds. She developed steadily and naturally until the sixth month when she had one spasm; dentition began at the tenth month. She walked at one year of age. The patient is the oldest of three children living, one boy and two girls. She was always constipated in a moderate degree. At varying times she talked in her sleep, after extra fatigue or prolonged excitement. The menstruation began at sixteen years of age, a common age in the family. The flow has always been scanty and the periods have also been irregular, many periods having been skipped entirely. No other physical or mental irregularity was noticed during childhood. In primary and preparatory school she learned easily and in her college course she was an average student—rather committed to routine in acquiring knowledge—and could memorize her lessons more readily than think them out. She stood best in mathematics and languages. English and composition work came hard and were really never mastered. She had poor power of general observation. She was naturally quick and impulsive in judgments as a child and this trait still persists. She has a very definite concrete mind and does handiwork well. All her life she has been overactive and energetic, has always been talkative but not very frank regarding her inner life. She was fairly fond of dolls, but exercised little imagination in play. She was rather of the tomboy type (she is thin, tall, rather childlike build, and never has weighed more than a hundred pounds). She is self reliant and never depreciative (the latter is often cloaked by a superficial screen of shy timidity). She never depends upon the opinions of others. She is conceited and opinionated at heart and is very egotistical when the cultured exterior is penetrated. She cares little for dress, but is naturally neat and tidy. While not especially honest with herself, she is very keen in emphasizing her dislike for sham and pretense in others. She stands aches and pains well. She is easy to get acquainted with but makes and breaks easily—out of sight, out of mind (childlike). The patient, in outlining her own character traits, stated that she didn't make friends easily "unless some common interest makes me at home with him (*sic*); which is not often the case." She finds she cannot "get on" with superior persons nor so well with girls of her own age. In the presence of the disharmonious group, she is rather silent and has a constrained unnatural manner of behavior and speech, especially when "the other fellow neglects his part of the friendly conversation; this has always been so." She is naturally selfish, apparently not through carelessness, but rather by design or a deep laid plan. Her thoughts are self engrossed. She is sympathetic in matters that do not cost her real personal discomfort (childlike attitude). She says, "I am generous, although I should never go to extremes in that direction and give away anything that means a good deal to me, at least not without a very good reason." She is quite tactless and is apt to respect the rights of others very little if she dislikes them. After she gets fairly well acquainted she dictates and runs things with a high hand. She represses a good deal until a favorable time, and then, as she says, "it all comes out and I have a grand clean up." While she is not quarrelsome, she admits she is stubborn and hangs tenaciously to her opinions that are often thinly disguised and ill repressed, and once freed, the exhibition is attended by "more than heat lightning." As a young child she was very disobedient and had frequent tantrums when crossed. "I think I always obeyed in the end, took my time about it though, and gave in grudgingly and ungraciously" (admitted reluctantly after apparent effort to evade the issue). "If I dislike a person, and I must confess there are a lot of them, I am very critical; I can seldom see faults in the few I really love, such as my mother, and Miss P."

(Note the particular fewness of the loved ones, and exclusion of the father.) She says, "I am not especially stubborn; I don't mind my mistakes being pointed out to me if I feel the other person knows more about the subject and *he* (*sic*) means well in so speaking to me." Note the resistance to the male sex and probably to the physician, especially. "I am trustful and forgiving unless a person irritates me continually (said with heat and emphasis), then I don't want anything to do with him (*sex*!)" She never holds grudges "very long" and if she does, adds, "to my opinion of anyone I dislike." She is easily offended and is quick to feel slights. "I must admit," she says, "I am often jealous, especially when people, as they often do, turn to others instead of me." To offset the feeling of being above her environment she has little to do with it and takes only a superficial part in improving her rooms. In other words, she projects her interest but little upon things and people about her; not as a weak understanding person might, but because she is so self centred and makes little or no marked impression upon her environment (her libido is rigid and not enriched in any wide contact with human events, the essentially infantile egocentric individual). She says, "I rarely express my mental attitude, my inner life, to anyone. I might unburden myself to Miss P. (the foster mother); I am never really demonstrative toward anyone and could never be unless I was very fond of *him*. I know I am naturally reticent, self centred and (in a jesting attitude), most fond of myself." As might now be expected to follow, she is not blocked by scruples or doubts, nor committed to routine or system. Underneath the surface of her character one sees insistent outcroppings of an intense demand to lead and rule, unless, as she says, "someone knows more about it than I do." She usually goes with the current and takes things as they are. "As a child I built air castles; used to put myself to sleep by dream fancies. I do still. I do little day dreaming (said reluctantly as though admitting it as a girl admits a lingering fondness for dolls), at least not much now, only at long periods, days or weeks (continuing again after a reflective pause); I daydream a bit, only when I get depressed, then I try to forget reality in that way. I know I have less imagination than the average person" (said as a disparaging confession that one has to admit reluctantly). She has always been cheerful and lighthearted, depressions are shortlived and superficial; she has a good sense of humor and is naturally enthusiastic and optimistic. She is very fond of pleasure and gets easily excited and boisterous over sports as a child might. She is often "keyed up" over the simplest games and it takes hours to quiet her. When she walks with a group of friends her nurse says "every part of her body is in motion, and she keeps up a continuous childish chatter and chaffing with some one of her companions." She is a more or less exact pattern of her mother in appearance and her temperament is like her mother's at the daughter's age. She is quite true in saying, "all our family resemble mother closely in our ways and characteristics, we are nervous, excitable, enthusiastic, and high spirited" (her family is but three removes from German immigrant stock) and she has always had an intense attachment to the mother and an ill concealed antagonism to the father. She is quite in harmony with her own sex, but constantly ill at ease with the opposite sex; the latter has never had any attraction for her. She says, "If I had to have anything to do with men I think I should prefer older persons." "I have never felt any demands for sexual gratification as ordinarily understood" (this statement concerns onanism and heterosexual, but not the broader conception of the demands of the libido in mother and girl "crushes," the particular nature of which will be dilated upon later). When one makes intensive inquiry regarding traits derived from sexual instinct of the reactions against its assertion in this girl, one finds that they are not at a minimum of expression. Considered in its narrower sense there has been no sexuality, the girl is asexual. If, however, one enlarges the ordinary meaning of sexuality to that given in the broader term of the libido, one finds that her fixation still rests upon the mother and upon herself, that the sexual life is largely narcissistic or advanced only a little way into a homosexual attachment. Of heterosexual direction one finds no trace, either in the conscious life or in the dream analyses; as regards the latter the patient excel-

lently summarizes the issues in saying, "I have no sexual curiosity, and have probably had about as little interest in the matter (of sexuality) as a person could have under ordinary circumstances." The value of sexuality in promoting intellectual usefulness may be seen in the fact that she has no general interests, no work or lofty ambition to satisfy. She says, "I hope to get some sort of interest when I get cured and can go home and there under mother's direction I hope to be useful and do what good I can." When pressed to an essential purpose from which she can gain satisfaction in life, she announces she is much interested in outdoor sports, dancing, music, etc. It may be said here that she is not graceful or good at any sort of play requiring agility, dexterity, or grace. There is no freedom of muscular release or basic conception of the "phrasing of muscular rhythm"—essential innate requirements for proficiency in sports. There is no real trace of religious interest nor gropings after the occult. In fine, we have here a classic case of mental infantilism, not indeed in the intellectual sphere (there is not the slightest trace of intellectual defect). Before closing this personality portrayal, I may say that we have here on the surface a bright, energetic, apparently normal, healthy, good tempered, fairly tractable, well intentioned, good looking girl. Only when we intently pursue the finer analysis of the real traits of personality and character do the facts shown up prove a quite other type of individual. Upon this basis, therefore, of mental infantilism and homosexual leanings, we shall see what striking proof of simple functioning dreams occurs.

In the dreams the mother or Miss P. (the foster mother) invariably occur. There are gayety, sports, and the sly possession of sweets and all the little liberties craved by the child type of mind not granted in a restrictive regimen (she eats strawberries in the dream, mince pie, etc.). She returns home and is in the attitude of adoration of the mother, being caressed and put to bed by her, given wise advice about the manner of treating her sisters and other little girls in play. A dream more ambitious, elaborate, and more grown up is that of Miss P. (who bears the same family name, but who is not even distantly related; Miss P. is of the same age as her mother, graduated in the same class in college, and is an important functionary in the college from which our patient recently graduated). She calls her Auntie, and a very intimate tie of friendship exists between the two. In the dream the two are in the college library sitting in confidential chitchat, when a fire seems to start near or between them; our patient strives to extinguish it, without haste or fear. She makes little headway and Miss P. adds to the flames as fast as our patient gains the least headway. Miss P. seems intent on keeping the flames going so that those at a distance who look on, may appreciate the valor of our patient. Both steered clear of actual danger. It was an enjoyable and pleasant pastime throughout. Adding fuel to the emotional life, personal attachment to Miss P. is just the conscious setting that so stirs or keys up our patient when the two are together in friendly visit. The nurse first called my attention to the fact that in privacy the two conducted themselves like a college "crush" association. At such times our patient became insubordinate, excited, "snappy" to the orders of the nurse, refused to take her treatment outlined, etc. Consciously and unconsciously our patient fights against the isolation from Miss P. ("where there is so much smoke there must be and is some fire" runs the true adage, there being indeed a personal application here). Apropos of the foregoing relationship of personal attachment which certainly continues more than the love for the mother, though under a tutelage part suggestive of the mother setting, is the following vivid dream remembered with affect for days. Our patient was in her bedroom counting some money, when Mr. O. knocked and entered without receiving permission. She treated him very coolly (in point of fact hates him very intensely in the waking state); she went on putting the room in order. Mr. O. mentioned money and the patient thought he was going to pay what he owed her (quite true), which she had despaired of ever having returned. Her hopes were shortlived, for after throwing himself upon the bed, he asked for more money instead (here a "left hand cut" at some Jewish money lenders took place). At Mr. O.'s demand she became "furious" at the disappointment of not getting her just dues and that she should have

the audacity to come in and ask for more, especially in so discourteous a manner. She took him by the collar, led him in a domineering manner to the door, and then threw him downstairs, banged the door shut, and went into a perfect tirade against all men of his class and the "specie" in general. In the midst of this orgy of anger her favorite nurse appeared, and soothed and calmed her, yet her anger would keep coming up, as she said, "every now and then, when she thought of this despicable man and many like him." As she directly saw, the dream had made a masquerade of the exclusion of heterosexuality under an ignoble setting of a perfidious man like Mr. O., and she had thrown all men out and freed her unconscious dislike of them *in toto*. It may be added Mr. O. is what is often designated as the predatory prowler, ever intent upon sexual advantage under the guise of a gentlemanly social polish. His showing up in his true color and light had long been a secret wish of our patient and she had thus had *la revanche* in the dream. The varying changes on the two things are rung time and again in a protracted dream analysis of this patient. Suffice it to say, that the dreams proved what the conscious personality analysis foreshadowed, that the patient was mentally infantile with a mother attachment, and that there were here and there homosexual tendencies for other girls toward whom she played both the passive and active role in relations closer than mere friendship. (I may say here, lest I be misunderstood, and in no instance have any of the cases under study actively engaged in homosexual relations as such, nor have the dreams revealed an actual sexual contact). Let us consider what relationship the epilepsy has to these conscious and unconscious activities and strivings.

The patient doesn't remember distinctly the occurrence of the first "sensation" (*petit mal*), but soon after they began to appear at all regularly, which they soon did, several presenting themselves in the course of a single day, she noticed that they were very agreeable "all over." A previous dull feeling in the head, nervous irritable restlessness, and desire to get away by herself was got rid of. Furthermore, she often encouraged them when disagreeable tasks or surroundings were at hand. The minor attacks were most desirable and were encouraged when she was alone and in bed. She then felt that they were pleasurable, quieting, soothing, as though going to sleep, "a delicious languor" came over her, and she used to pull the bedclothes over her head and enjoy them to the utmost. If anyone came into the room, shook her, or did distracting things about her, she felt irritable, said unpleasant sharp things to them, e. g., "Can't you leave me alone, I wish you would not bother me," etc. The further descriptions of the vaguely remembered things that happen to her when actually in a sensation attack are almost word for word identical with those in Case V and to save time and space will not be detailed here. Whenever these minor seizures occurred, and she was about various social duties, she felt distracted and always wanted to get away and lie down, preferably in bed with the blankets pulled up over her head. The latter situation was ideal for enjoyment. In the sensation periods of moderate severity, she invariably says, "Yes, yes, I am quite all right, why certainly," etc., apparently unconscious assurances that the state is no cause for alarm and to fend off anyone trying to do anything to or for her. Occasionally she uses rather simple baby expressions as "dearie" and "mamma" and expresses a desire for water or an article of clothing. One should note carefully that these minor attacks shade gradually and imperceptibly into those more severe until she has the grand convulsive attacks with tongue biting, etc. A large number of the severe periods of the minor sensations make her feel less fit afterward. She is then "dragged out," slightly depressed, and desirous of sleep and quiet. For two or three days before the sensation series are to occur, the patient takes a lively, rather silly, sentimental attitude toward her nurse, which is never shown at any other time, and is in marked contrast to quite the opposite feeling in prevailing moods. Since having grown up she is never sentimental to the mother, but is often rather inclined to be hypercritical and faultfinding with her. She says when the mother and Miss P. are both visiting her she feels "repressed toward the mother and open hearted toward Miss P., and yet when they are away, mother comes first and Miss P. second in my regard. It is very queer;

I can't explain it." After the situation of conscious repression of the mother against the unconscious fixation on her and the libido attempt to find outlet by a slight displacement on Miss P. had been made quite clear, she asked if the state was not similar to a selfish child, under protest, putting on a brave, cheerful face in giving away its long cherished toys and finding that the act finally had pleasant, satisfying effect after all." Whenever the sensation series is due and actually occurs at the menstrual period, which is not infrequently the case, the state of exaltation and sentimental mood dominates the picture, but the sensations fail to occur in frequency and severity as at other times. After the two are passed, an extra state of lassitude and quiet mood succeeds, to be followed in turn by depressions greater than after either one alone. Their functions are therefore reciprocating and unconsciously allied. This case is the only one in which the patient really consciously wanted to have the minor attacks which she actually enjoyed. As is well known, most epileptics dislike their attacks, not because they are painful, but because of their aftereffects and the restriction entailed by the constant existence of the malady. If there was an absence of many of the unmistakable evidences of epilepsy in our patient, one might easily consider the flight in the minor attacks to the mother as essentially hysterical. However definite an organic postulate for epilepsy has been in the past (corticomarginal gliosis, etc.), it is evident that attacks like the foregoing draw the manifestations and mechanisms of the two disorders into very close relations. If the mental disorganization in epilepsy were not so great and penalizing to the individual, the disease might easily lose some of its grandeur as a neurosis and ally itself with the psychoneuroses. A preparatory setting for an unconscious flight (in the minor attacks) to the mother is shown in the following resistance to analysis which preceded a series of sensations. "No one goes to the doctor, unless he is very ill. I'll bet no one ever liked to go to you. I suppose some of them (physicians) do some good. They are unreasonable and dogmatic and not really sympathetic" (a sensation occurred here and the interview was closed).

To summarize Case VII, we have here a case of mental infantilism and its mother attachment, a keen dislike of men, a slender transference of the libido upon her own sex independent of the fact for the mother; while in the epileptic attacks, as far as analyzable, she goes back to the mother life and thus gains a libidinous satisfaction in it. One would not expect the prognosis to be so very good in such a case if it were not for the fact that cases which show, as here, an intense desire for athletics and outdoor sports are more easily weaned (sublimated) into outdoor useful occupations than those whose interests are purely academic and studious in character.

CASE VIII is that of a married man, aged thirty-five years, who has had but four grand mal attacks in his short epileptic career. His first attack appeared about two years ago, at night. He was unconscious, following an epileptic cry he fell out of bed, bit his tongue, frothed at the mouth, and voided urine. The other attacks were a little less severe in some respects, but not essentially different from the initial one. The first seizure was followed by a violent fit of belching of gas and some acid mucus, which continued every fifteen minutes for several hours. The neurosis, however, had been present for some years previous.

The patient is the youngest living member of a family of nine children, four others of whom are now living. There is no marked neurotic family history. The mother died when the patient was two years old. The patient's education was not up to his opportunities as a boy. The power of attention was not good, and he did not observe closely or well. Nevertheless, he had good common sense and prepared for college with some difficulty, but did not enter. He never had a good boyish appreciation of sports. He was vague of purpose and planned ill. Although he

In point of fact, the epileptic seizures appeared when patient entered actively into the business with the brother at twenty-one years of age.

was not practical of mind and used tools badly, he was intensively overactive as a child. He was not ingenious and had no productive imagination, but was fond of writing rather crude forms of rhymes. As a boy, being the youngest in the family he was left much to the care of nurses and did not mingle freely with the older members of the family. He lived a rather repressed boy life and spent his energies in a rather desultory way. He had no feelings of inferiority, but was rather conceited and egotistical, and is so still. His estimate of himself is rather naively shown by the manner of his depreciation of other people. While he disliked shams, he was not honest and genuine with himself. He often blamed others for his faults, but withstood pain courageously. He was much inclined to self pity as a boy. As a young child he was sociable but not after the age of twelve years. He made boy friends rarely and held these indifferently well. He played by himself for the most part and seemed satisfied with that arrangement. When he was reprimanded or criticized, he was very sensitive. He grew up a gentlemanly selfish young man, and had little open generosity or sympathy with the family or world at large. He was married a year ago to a young girl of twenty-two years, who was rather beneath him in the social scale, but is his mental equal, a child wife (Dickens's Dora pattern). The older sister made the match. Before he married he often played cards for small stakes, but his card companions thought him a bad loser, as he was grumpy and sour when he lost. He is very stubborn and set in his opinions. He is a supersensitive individual and his temper is easily provoked as shown in periods of sulking. He is easily offended and sees slights where plainly none were intended. He adjusts slowly and poorly to new social and physical environments. While he often reads good literature, he is never able to give a thorough or comprehensive criticism of it. The whole social order of things about him has never concerned him. He always bore an attitude toward his brothers and sisters as though none of them really understood him, speaking little of his real thoughts and inner life. He has never been frank. There is also no keenness of conscience. He is not naturally cheerful and lighthearted, but uniformly pessimistic. He takes his own affairs rather seriously and ponderously. He is never openly enthusiastic. Good news enlivens him for a time, when the serious mood quickly supervenes. The sister, who practically brought him up, states that she never saw him really enjoy anything for any length of time. He seemed to brood a good deal without apparent reason. The father's death when our patient was fourteen years old was of little moment to him. When he dines in a mixed society of people, he rarely has anything to say. When he does address anyone, his mental action is boyish and shows little adult content. He is not very affectionate, and the affections go out in very few directions. All his affections seem now centred about his wife lest she shall worry about him. In his courtship he was very boyish, silly, and showered his fiancée with lavish gifts far beyond his income, and collected pictures that were of little value. The walls of his private rooms were loaded with trumpery decorations and arranged in bad taste. The sister states that as a youth he was never a "thorough-going" boy and never had any girl love affairs. He is not ambitious in any direction and never has been. He plays a good game of tennis and is fair at golf.

From the foregoing we have a supersensitive yet egocentric type of personality, in which the whole psychosexual life is immaturely developed. A superabundant amount of energy, self centred, and rather shut in is also shown. Let us note what the more intensive analysis brings out regarding the development of his disease.

We find our patient lost his mother at two years of age and the only mother memory which he thinks he can revive is that of her sitting on the sofa and extending her arms to him, inviting him to come to her. The memory, the only memento he has of his mother, which has persisted in spite of the family belief that it is but a story his sister told him, is so precious to him that it has been his one portraiture of her which he has fondly cherished ever since he can remember. His attachment to the older sister, who brought him up, was not strong. He believes she was not fully sympathetic to him, was too commanding, and not gentle. She married late in life and has no children, and, our patient thinks, never really developed the

true maternal instinct. He often turned to the maternal grandmother for comfort and love. She talked to him by the hour of the perfections of his mother, and he obtained a large and lively fancy of this tale of his infancy with the mother image thus created; these mother love fancies led early to states of abstraction and absentmindedness when the outside world did not interest him or the immediate environment was cold, barren, and uninviting. In these flights of fancy he was with the mother in all sorts of intimate relations. He grew up respectful of, but disliking the father; he always took exception to the latter's violent attacks of anger. The father got on best with the older brother (six years older than our patient), talked business over with him, and went about the town and country with him whenever he could afford the time to do so. When our patient was fourteen years old, the father died suddenly. Our patient was not much perturbed, save that it steadily pointed the road of future interest and work for him in the manufacturing business which had been established by the father. Our patient looked forward to the time he could be taken into the firm, but had some misgivings of his ability to get on with the brother who has the identical temperament and makeup of the father. Through the next few years there grew up a deep antagonism between the brother and our patient. The latter went on finishing his education, however, and the brother, unaided, had to work out the upbuilding of the family business which the two brothers were ultimately to take over from the family interests after earning it. At eighteen years our patient assumed an active part in the firm with the brother, and little by little was built up a colossal deep-rooted dislike of each other. On the surface things were amicable and most friendly (see Strindberg's *Red Room* for a picture of the brothers' antagonism). At about this period our patient developed his gastric neurosis of "belching gas" and a feeling of oppression in the epigastric region. A whole series of formulas of food and daily habit adjustments to heat, work, and rest, were used to propitiate this obsessive neurosis. Still the latter grew until the reversal of the gastric peristalsis was actually established. Slight recurring attacks of gastric catarrh and an atypical migraine appeared eight years ago. The situation went from bad to worse until four years ago, when he began to have peculiar dreams rather periodically. The general character of these dreams was that he was contending with an unknown adversary but that neither seemed to gain the advantage (patient was probably losing) when the patient felt a nightmare effect and that he must awaken; in fact he thought he was awake, but couldn't move, etc. After each of these dreams he was depressed the greater part of the day following. These dreams began to appear more frequently, as often as once a week and they always left him dispirited, listless, and indifferent to his social and business obligations. Day dreams and fancies led him into music, literature, and the arts. The ambition, however, to succeed at these artistic pursuits was not strong, and he succeeded at them only indifferently well, as noted in the personality study. His favorite art study was of the Madonnas; literature was confined largely to Shakespeare. The reading and study of *Hamlet* and *Macbeth* engrossed his mind, seriousness of death was voiced to him in the music of *Pagliacci*, *Lohengrin*, *Faust*, and *Carmen*. Our patient finally became more hypochondriacal and moody about his gastric neurosis. He consulted everybody and had all sorts of examinations made, which disclosed nothing abnormal in the functional or structural gastric economy. The controversial dreams occurred nearly every night now. He felt on these nights that he couldn't waken, as the dream was "not finished and no satisfaction was obtained in it." The dream advanced to a "certain point and could not go beyond that point" and then he would awaken. There now appeared two motives in the dream, one to overcome the adversary and the other to get away from it to a "state of peace and quiet," the latter feeling succeeded the initial one of resistance. Finally the unconscious dream setting broke through into a grand mal attack as noted in the beginning of this history, after which he felt the "ghost" of the dream had been laid but at the cost of an epileptic fit. Analysis finally showed that the brother was the one with whom he was contending, and back of the brother personality was the father; further, the removal of these obstructions disclosed the "peace and quiet" longed for was

that of the nirvana of union with the mother with this difference from that described in Case v: the descriptions were less infantile and more those of the biblical counterparts of heaven, etc. It may be added that since the grand mal attacks of epilepsy he has had no more assaulting dreams, but slight reverberations of the old brother controversy are occasionally seen in such sleep talkings as "No, no," and "No you don't." The gastric neurosis improved after the epilepsy broke out, but "dry belchings" continued for several months until he had a long and satisfying "talk at and with" the brother and all old conscious scores were cleared away; the gastric neurosis underwent a marked change for the better at once. In spite of the withdrawal of large doses of sedatives, he has now had no symptoms of epilepsy for over six months, a longer time than ever before since the first grand attacks.

To summarize Case VIII and last, we have a case of essential epilepsy with tongue biting and passage of urine, in a psychosexual inferior who was intensively attached to the mother imago, who was consciously and unconsciously very antagonistic to the father and brother, and who, under the goading of the later association with the brother, had controversial dreams, in the deeper settings of which were attempts to annihilate both. Going still more deeply, the wish of a pleasure flight to the mother and heaven was disclosed. Later the whole dream mechanism broke loose from the unconscious, got by the conscious repression, and the patient had a fit. The upsetting factors were the gastric-migrainous episodes, the latter being initiated by the psychogenic neurosis, which in turn was a defense reaction against the brother's behavior and conduct. Then, too, the patient had just married, four weeks before the epilepsy developed; the requirements for a heterosexual life probably inflated the unconscious attachment to the mother; it also required that the infantile unconscious be further repressed, hence the old father-brother conflict was made to mean more, such as getting rid of the father and a return to the mother at one and the same time. Just how effectually the patient can readjust his life to this brother complex and heterosexuality and broaden his essential psychosexual inferiority, will remain an interesting problem for future study and report.

84 EAST FIFTY-SIXTH STREET.

Abstracts and Reviews.

CARBOHYDRATE UTILIZATION IN DIABETES BASED UPON STUDIES OF THE RESPIRATION, URINE, AND BLOOD.*

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It has been contended by some of the best students of the problems of human diabetes, that in the most severe cases there was no capacity of the body tissues to utilize carbohydrates. Other equally careful observers have held the opposite view, to the effect that the tissues always remained capable of some degree of carbohydrate utilization. The methods of study upon which these two conflicting and directly opposed beliefs were based, were probably to blame for the contradictory results. Very few cases indeed have been published in which the

evidence was at all convincing that there was no utilization whatever of the carbohydrates.

At first sight it does not seem to be a difficult matter to measure accurately whether or not an individual actually burned carbohydrate. Such measurements, however, offer one of the most difficult of problems. One of the most obvious methods of studying this problem seems to be by the determination of the influence of carbohydrate administration upon the body weight under controlled conditions. Such studies have been made, but their results are not convincing on account of several disturbing factors which necessarily introduce sources of considerable error. Comparisons were made between the weights of diabetic individuals when fed on a diet of constant caloric value containing a measured minimum of carbohydrate, and when given the same diet with the proportion of carbohydrate increased or entirely replaced by an amount of fat sufficient to maintain the same caloric value. These studies showed that there was a gain in weight when the person was given carbohydrates, compared with his weight when given fat, and this was regarded as indicative of carbohydrate utilization. It has since been shown that such a conclusion is not altogether warranted; there may be some storage of carbohydrate in the body tissues without its utilization. The storage alone would be sufficient to account for the small changes in weight which were observed, for each gram of carbohydrate stored requires three times its weight of water to accomplish its storage, and the weight change might be accounted for by the weights of the combined water and carbohydrate. In the case of the storage of fat, the conditions are quite different, this substance requiring only one tenth of its weight of water for storage. In conditions of fasting, diabetic individuals show less loss of weight than normal persons, and with a return to food they gain more rapidly than normals. Probably these differences are due to greater storage of the carbohydrate in the former.

Other fallacies in the weight studies are to be found in that little account has been taken of the fact that when carbohydrate is converted into sugar in the body, it increases in weight, 100 grams of starch yielding 105 grams of sugar. In addition, considerable errors commonly enter into the problem through the unsuspected differences in the actual amounts of carbohydrates taken in on a fixed diet. It is usually necessary to reduce the intake of carbohydrates to fifty grams or less daily in a diabetic to make the urine sugar free. Although the amount of carbohydrate given may be weighed or carefully estimated, variations of from five to ten grams in the daily intake often occur without their occurrence being suspected. These are due to the small but appreciable amounts of this food substance which are ingested in the form of carbohydrate—poor vegetables, etc.

Another method of approaching the problem of carbohydrate utilization has been by the quantitative estimation of the urinary sugar output on fixed diets. In good laboratories the estimation itself should be fairly accurate, but it has been shown that great errors may be introduced by slight accidents in the collection of the urine through lack of perfect cooperation of patient and attendants. In addition, some very painstaking studies have

*Summary of a lecture delivered before the Harvard Society, at the Academy of Medicine, New York, March 13, 1915.

shown that on an absolutely uniform diet and with the most cautious collection of the daily urine, a diabetic may show great differences from day to day in the amounts of sugar excreted in his urine. Again, the previously mentioned differences in the daily amounts of carbohydrate consumed on a well restricted diet introduce errors in these estimations. If either weight studies or estimations of sugar output, or the two combined, are to give us any useful information, we must exercise the greatest precautions to reduce these factors of error and must have long periods of observation for comparison.

About 400 grams of glycogen are stored normally by man, this amount being nearly equally divided between the liver and the muscles. In diabetics the stored glycogen is less than normal, but it never falls to zero as it does in completely depancreatized dogs. In partially depancreatized dogs the condition resembles that found in man, there being some stored glycogen in the body. It seems obvious that the severest cases of human diabetes are capable of some carbohydrate utilization.

Normally the blood contains about one tenth per cent. sugar, and when the sugar intake is suddenly increased, or when small amounts of sugar are injected intravenously, this percentage rises for a short period, to fall more or less slowly with evidence that there is an increased burning of the sugar by an increase in the respiratory quotient proportional to the increase in the sugar in circulation. Diabetics, on the other hand, have a constantly higher percentage of blood sugar, and the introduction of more sugar does not produce so marked a rise as normally. In these persons also, the rise in blood sugar is not associated with an increase in the respiratory quotient, although the proportion of blood sugar falls to its previous level more rapidly than in the normal individual. These differences suggest that in diabetics there is some new mechanism by which sugar may be rapidly stored in the tissues, and we have thought that this might take place in some of the body fluids. In a normal man the quantitative changes in the sugar in the blood and in the cerebrospinal fluid do not run parallel, the amount in the latter fluid remaining undisturbed by an increase in sugar intake. In diabetics, however, we have found that there is considerable parallelism between the changes in the sugar content of these two fluids, the sugar in the cerebrospinal fluid rising and falling with the blood sugar. This suggests that some of the body fluids were capable of taking up an abnormal amount of sugar in diabetes, giving it up again as its excretion slowly took place, rather than liberating it for burning.

When a normal man fasts, his respiratory quotient will drop to about 0.73, and even when he receives a diet of protein and fat, it will remain at about the same point. When carbohydrate is added to his diet, his quotient rises rapidly and more or less proportionally with the amount of carbohydrate taken. A diabetic individual gives about the same quotient of 0.73 during fasting, but when carbohydrate is added to his diet there is little or no rise in the respiratory quotient. This seems to show that he could not burn the carbohydrate which he ingested. Inasmuch as under these conditions diabetics give respiratory quotients similar to those shown by normal fasting men, it is

obvious that they maintain about the same equilibrium in their vital processes. Lusk has shown that there is a definite ratio in phloridzinized dogs on carbohydrate free diet between the urinary nitrogen and the respiratory quotient, from which it is evident that a certain amount of sugar is produced and burned from the protein intake. The same condition has been shown to occur, to a certain extent, in a diabetic man. From these observations it is evident that even the severest cases of diabetes give evidence of some ability to burn their stored sugar and to convert some protein into sugar which they then burn.

Normal man loses weight rapidly and develops acidosis when he is fasting. The diabetic, on the other hand, loses little or no weight and both sugar and acids disappear from his urine. In long fasting, too, normal man shows a fall in his respiratory quotient, while the diabetic shows some tendency to a rise. Such observations lead to the belief that the diabetic, even in the severest cases, burns some sugar or some other body substance to compensate for it. The fact that he loses his acidosis suggests the possibility of his burning the acids. Recent studies which Benedict and I have made, seem to confirm this idea. Beta oxybutyric acid has a high caloric value and yields a high respiratory quotient, and it seems altogether probable that the diabetic burns this substance in the course of a long fast.

In conclusion, it should be emphasized that, for studies in the utilization of carbohydrate in diabetes to be of any material value, long periods of observation must be available for comparison and the greatest care must be exercised to avoid the many sources of error already mentioned. While the more recently developed method of the study of the respiratory quotient seems to yield more definite results, it should be borne in mind that as yet we know but little concerning this subject and we should, therefore, refrain from drawing too definite or too dogmatic conclusions from our observations.

Medical Queries and Answers.

The JOURNAL is now prepared to answer questions from subscribers on strictly medical topics, recent treatment, bibliography, operative technic, etc. Personal replies are sent by mail as soon as they can be properly prepared; later, such answers as seem to be of general professional interest will appear in this department. Subscribers are requested to confine their queries, general or personal, to matters of serious medical import.

Are there any springs or spas in the United States where treatment may be obtained similar to that at Marienbad?—On such a point we do not usually express positive opinions, favorable or the reverse, for we have not made any estimate of the value of our own springs. We see clearly that the course taken by some of our medical journalists, when they write on this subject, is wrong in balance. They magnify faults and virtues without proportion. But the interest of this question is out of the regions of criticism and praise, and we are glad to notice it with thanks for the opportunity of identifying the places in this country which resemble Marienbad.

We are accustomed to think with regret that there

are few American treatises on our spas. Doctor Crook has written an interesting book on the *Mineral Waters of the United States*, showing how the different springs may be used. It is an excellent work, but on account of its date (1899) will not give complete satisfaction as an authority. For strong chalybeate and alkaline waters, Mt. Clemens, Michigan, comes nearer to the springs of Marienbad in proper degree of these ingredients. The quality of the sulphated alkaline waters of Marienbad is possessed by the springs of White Sulphur, Virginia, and perhaps to a still greater degree by the waters of Hot Springs, Virginia. Physicians generally regard these springs as equal to those of Europe. As the names imply, their waters are hot. The springs of Marienbad, on the other hand, are cold. Similarly, the Hot Springs of Arkansas have alkaline properties and a considerable amount of free carbonic acid. The waters are used for bathing. They give most benefit to the vigorous, and are less adapted than those of Marienbad for weak hearts and lungs. The diseases commonly treated at Marienbad—dyspepsia, gallstones, incipient cirrhosis, obesity, chronic constipation, "uric acid diathesis"—are benefited by all the waters we have mentioned. For these diseases some laymen recommend Battle Creek (Plunkett, *Some Aspects of Modern Medicine*, etc.). Authorities, like Weber, advise both baths and the drinking of waters (*Climatotherapy and Balneotherapy; The Mineral Waters and Health Resorts of Europe*, p. 183). Baths are used in a minor degree—to the advantage of the powers of oxidation. The main use of the springs, whether hot or cold, depends on the mineral constituents.

Please give references to empyema in children, without sinus thrombosis.—Cases of empyema in children, without sinus thrombosis, are elaborately described by Scheibe (*Zeitschrift für Ohrenheilkunde*, 48, S. 66 und S. 73, 1904). The complex relations that exist between the middle ear and the body are investigated by Heymann (*Archiv. für Ohrenheilkunde*, xc, 267, 1913, and xciii, 1, 1914). His paper presents an endless number of pathological and bacteriological problems which demand wise research and acute interpretation for their solution. To show that empyema is intimately associated with the bacillus of Friedländer and the bacillus of influenza, the case of a child eight days old is described (p. 63). You will find other cases in Bezold (*Lehrbuch der Ohrenheilkunde*, 1906). To some authors it is a question whether empyema after otitis media occurs without sinus thrombosis. Ufenorde has gathered the evidence on this point and answers in the affirmative (*Zeitschrift für Ohrenheilkunde*, 60, S. 107). See also Kobrak (*Allg. med. Zentral-Zeitung*, 20, 1907) and Brieger (*Verhandl. d. deutschen otol. Ges.*, 1907). The empyema can be manifest in many places, but its most common sites are the bones, the lungs, and meninges. Körner (*Die citrigen Erkrankungen des Schläfenbeins*). In our American literature, you will find a note on the subject by Sexton (*Trans. Amer. Otol. Society*, 10, p. 1).

Please refer me to useful recent literature on cleft palate and harelip.—We begin with Brophy's operation, described by Berry and Legg in their

concise and practical monograph, *Hare Lip and Cleft Palate*, 1912, p. 266. They justly remark that Brophy's original technic was a "severe procedure," that many deaths occurred in consequence through "sepsis, fracture of bones, and other causes." His new technic with clamps and wires is carefully described (pp. 266-279).

Outpatient conditions are not favorable to operations of this kind. Nicoll, however, gives us an account of hare lip operations in the Western Infirmary, Glasgow. The results are extremely good. (*Edinburgh Med. Journal*, n. s., 11, p. 419, 1913.) The essence of the technic is the cutting and wiring of such methods as Brophy's, and overtilting of the intermaxillary in alveolar cases. It will be noted that this doctrine is different from the usual one. He adopts tension, tinfoil plating, and median position of the prolalabial juncture, as well as nostril moulding. The serious factor in such a technic is the subsequent contraction of scar tissue. It is not easy to watch the scar in outpatient work.

An examination of the Brophy operation has been published by Kaerger (*Archiv für klin. Chirurgie*, 103, p. 255, 1913-1914). The article, which treats of hare lip and cleft palate, is complete in its practical exposition of Brophy's technic. The sole point of difference is the preliminary subperiosteal incision of the intermaxillary after Bardeleben. Kaerger operates preferably on children at the age of three years. He also gives a history of former operations.

A still newer method of closing cleft palate is described by Drachter, of the Children's Clinic at Munich (*Zentralblatt f. Chirurgie*, 41, pt. 1, p. 497, 1914). One point has particularly seized our attention. While Kaerger adopts bloodless redressment of the intermaxillary, Drachter employs a modification of Shoemaker's incision. He cuts a triangle through the hard palate behind the alveolar edge of the intermaxillary and through the nasal septum. The result does not seem to be particularly remarkable. When we turn to operations like Arbuthnot Lane's, other contrasts are to be noted.

For prosthetic procedures consult *Beiträge zur klin. Chirurgie*, xci, p. 569, 1914, Messerschmidt's monograph, and Eastman's article on the Factors of Safety in Cleft Palate Operations (*Lancet*, 2, p. 312, 1914).

All these operations may have defects of method or technic. Such questions we leave to your own judgment; we do not undertake to recommend any of them.

The operation, often referred to as the turn over flap operation, consists, briefly, in raising from the soft parts on one side of the cleft, a flap consisting of mucous membrane, submucous tissue, and periosteum covering the bony palate, or of half the thickness of the soft palate in the region behind the bone, which flap, having its hinge at the edge of the cleft, is turned over across the cleft like a page of a book, so that its raw surface is exposed in the mouth (as is also the raw surface from which the flap has been raised), and its epithelium covered surface looks upward into the nasal cavity; the free edge of this flap is then tucked under the mucoperiosteum covering the bone on the opposite side of the cleft, this mucoperiosteum being raised from the bone for some distance so as to admit the edge of the flap; the latter

is then fixed in place with sutures. Certain modifications required in the case of the soft palate need not be detailed.

The flap may be made as wide as is necessary; it need not be confined to the width of the palate, but, if the milk teeth are not yet erupted, the soft parts covering the alveolar process, and even those of the cheek may be made use of, so that closure can be effected in the case of any cleft, however wide. But there is a compensating disadvantage in making such a wide flap; not only is its blood supply likely to be precarious, but the flap can scarcely be raised from the alveolar process without doing damage to the underlying tooth germs. The dental alveoli at this age are protected by bone at the sides, but below they are covered in only by the soft parts of the gum, and in raising up these soft parts the teeth are apt to be exposed. The resulting damage is likely to be confined to the temporary teeth, but the disadvantage is not a negligible one.

Therapeutic Notes.

Calcium Salts in Certain Skin Disorders.—Frey, in *Medizinische Klinik* for March 1, 1914, calls attention to the value of calcium chloride, taken internally, in some cases of acne or of acneiform skin affection. Experimenting upon his own person, he took forty-five grains (3 grams) of sodium bromide daily until dermatitis appeared on the lower extremities, then added to the bromide a like amount of calcium chloride, with the result that the skin disturbance soon passed off. He suggests that calcium bromide or iodide be used instead in similar conditions of medicinal dermatitis; three tablespoonfuls of a ten per cent. solution should be given daily in the case of the bromide, and a like amount of a five per cent. solution in the case of the iodide. In an ordinary case of acne Frey administered calcium chloride in solution with marked benefit. He recommends that the same measure be tried in other pustular skin affections, and particularly the conditions often observed in diabetes mellitus.

Treatment of Pulmonary Tuberculosis.—J. F. Larrieu, in *Semaine médicale* for March 18, 1914, recommends, at first every five days, then every week or twelve days, either at the lower third of the arm posteriorly or at some point in the back, a subcutaneous injection of the following preparation:

R Guaiacolis, ℥⁺₃ (0.05 gram);
Iodoform, gr. $\frac{1}{2}$ (0.01 gram);
Camphoræ, gr. iss-iii (0.1-0.2 gram);
Olei olivæ sterilisati, q. s. ad. ℥xvi (1 c. c.).
Mise.

This preparation may be rendered more fluid, if necessary, by the addition of a few drops of ether. Its injection causes pain only for ten to thirty seconds. An injection of one sixtieth to one twentieth of a grain (0.001 to 0.003 gram) of strychnine sulphate can be given immediately after without removal of the needle if desired. If the expectoration is not rapidly improved, from two fifths to four fifths of a minim (0.025 to 0.05 gram) of eucalyptol may be added to the formula, or separate injections

of camphorated eucalyptol given at ten day intervals:

R Eucalyptolis, ℥i (0.05 gram);
Camphoræ, gr. iss-iii (0.1-0.2 gram).
Mise.

In addition the patient should take on twenty successive days in each month, and for several months, a tablespoonful of the following mixture:

R Potassii iodidi, ʒiss (6 grams);
Potassii bromidi, ʒiii-iii (8-12 grams);
Strychninæ sulphatis, gr. $\frac{1}{2}$ (0.03 gram);
Tincturæ cinchonæ, ʒv (20 c. c.);
Fluidextracti cocæ, ʒi (4 c. c.);
Glycerini, āā ʒiv (120 c. c.).
Syrupi aurantii,
Fiat mistura.

In cases with a constantly rapid pulse forty drops of digitalis tincture and twenty to thirty drops of strophanthus tincture may with advantage be incorporated in the foregoing formula. Syrup of krameria may be substituted for the orange syrup where tannic acid is indicated. Sixty to eighty drops of Fowler's solution may also be added where this is believed desirable.

In the presence of slight gastrointestinal catarrh or a mere difficulty in digestion four grains (0.25 gram) of phenyl salicylate should be given in a spoonful of some hot fluid immediately before or after each meal. Where the expectoration remains copious and digestive trouble exists, combinations such as the following are suitable:

I.
R Betanaphtholis, gr. iiss (0.15 gram);
Sodii benzoatis, gr. iss (0.1 gram);
Terpini hydratis, gr. ʒ $\frac{1}{4}$ -iss (0.05-0.1 gram);
Sacchari lactis, gr. iii (0.2 gram).
Ft. cacheta No. i.
II.
R Acidi tannici,
Santalii rubri pulveris, āā gr. iii (0.2 gram);
Sodii benzoatis, āā gr. iiss (0.15 gram).
Ft. cacheta No. i.

These preparations should be taken with the noon and evening meals.

In the ten day intermissions between courses of the iodide and bromide mixture already referred to, the patient should take a granule of one sixtieth grain (0.001 gram) of strychnine sulphate with the noon and evening meals. The treatment outlined should be continued for some months after apparent cure.

Colloidal Iron in the Treatment of Anemias.—Duhamel, in *Revue de thérapeutique médico-chirurgicale* for March 15, 1914, reports a series of cases of anemia treated with a colloidal preparation of iron containing one part of the metal in 1,000 of fluid. The series included cases of chlorotic, infectious, and posthemorrhagic anemia. The preparation was injected subcutaneously, intramuscularly, or intravenously in doses of two to five c. c. (30 to 75 minims). The results were very satisfactory, a rapid rise in the hemoglobin percentage and red cell count being noted, without any evidence of the unpleasant effects of iron sometimes witnessed. General nutritive processes and the appetite were improved, and the headache and digestive and other symptoms common in anemia caused to disappear. A preparation such as that used seems advantageous in that it combines the action of the metal itself with the useful properties of colloids in general.

NEW YORK MEDICAL JOURNAL

INCORPORATING THE

Philadelphia Medical Journal
and The Medical News.*A Weekly Review of Medicine.*

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Address all communications to

A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,
66 West Broadway, New York.

Subscription Price:

Under Domestic Postage, \$5; Foreign Postage, \$7; Single
Copies, fifteen cents.

Remittances should be made by New York Exchange,
post office or express money order, payable to the
A. R. Elliott Publishing Co., or by registered mail, as the
publishers are not responsible for money sent by unregis-
tered mail.

Entered at the Post Office at New York and admitted for transpor-
tation through the mail as second class matter.

Cable Address, Medjour, New York.

NEW YORK, SATURDAY, MARCH 27, 1915.

THE PATHOGENESIS OF CHLOROFORM
POISONING.

It is evident from the published cases of poisoning by chloroform, that the writers have held very different views as to its pathogenesis. For some it is an acid intoxication, while others regard it as an acetonemia due to acute yellow atrophy of the liver. A question of greater import is the mechanism of the accidents produced. It is difficult to believe, as do Nothnagel and Ostertag, that the changes are due to the direct action of the drug on the blood, and it seems more logical to admit that there is a direct fixation in the tissues. Death is evidently the result of a complex action in which most of the viscera take part, particularly the heart, kidneys, and liver, likewise the brain which, on account of its special aptitude to fix the anesthetic agent, should be the object of more research.

Everything appears to prove, however, that late death from chloroform is above all the result of a hyperacute hepatitis. This is made evident by the analysis of the urine and the syndrome of icterus gravis. But why are there so few deaths if chloroform is a poison to the hepatic cell? In deaths there has been no history of preexisting liver trouble, and certainly diseased and injected hepatic glands receive special attention from the modern abdominal surgeon; still there are few unfortunate results attributable to the anesthetic.

Nevertheless, chloroform does attack the hepatic cell in every narcosis, but the duration of its contact is short and results in only a temporary process of irritation which is quickly repaired under ordinary circumstances. In some cases, however, from an unknown influence, the diffusion of the drug does not take place normally, the viscera fix it in their parenchymata and it continues to produce its toxic effects as long as it is retained in the organism, so that the patient in reality undergoes subintra-chloroformizations. This explanation is not merely an hypothesis, but is founded on actual clinical observation and on necropsy findings as well, in which the odor of chloroform was given off from the brain and liver, in one instance one full week after the anesthetic had been administered.

The question arises, why there is always a latent period between the narcosis and the appearance of the accidents. This is undoubtedly due to the fact that it requires a certain time for the lesions to become developed, while to the toxicity of the initial pathogenic agent the toxic action of the products of cell disintegration becomes added, as well as the various intoxications resulting from the loss of the hepatic functions. Exogenous and autochthonous intoxications ensue and combine. Quite the same process occurs in poisoning by phosphorus, and it is well known that after ingestion of the latter there is usually a remission of the patient's condition before icterus and painful tumefaction of the liver become manifest.

As to the intimate mechanism of hepatic cell degeneration, it is undoubtedly similar to that set up by other poisons of this organ. Recently, West has attributed it to an elective action on the diastases of oxidation. His argument appears to be founded above all on hypotheses and analogy. For that matter, the study of the phenomena of intimate cell life and particularly the oxydases, is as yet too little advanced for one to follow him on this ground.

THE HISTORY OF ARMY AMBULANCE
SERVICE.

At the present time, when the ambulance service of all the nations engaged in the European war, with the possible exception of Russia, is so greatly improved, it may be interesting to trace briefly the history of ambulance service in warfare. In the *Liverpool Medico-Chirurgical Journal* for January, 1915, Dr. C. J. Macalister gives a description of the initiation and progress of the army ambulance system. It was begun during the Crusades by the Knights Hospitalers of St. John, who are still in existence, and who have carried on their work in this direction almost up to the present time.

Their methods were more or less crude, and the honor of having introduced a system of ambulance service on a scientific basis belongs to Napoleon's two great army surgeons, Baron Larrey and Baron Percy. They brought in methods of giving speedy and efficient relief to the wounded and may be regarded as the pioneers of our modern military ambulance service. To Baron Larrey, in particular is due the credit for laying the foundation of the existing modes of treating and caring for the wounded on the battlefield. He introduced the system of *ambulances volantes* or movable field hospitals, which had attached to them a number of light carriages on springs which were speedily drawn by two horses into the very midst of an action, whence they conveyed such as were unable of themselves to get to the rear. Thus the hospitals were brought to the wounded and not the wounded to the hospitals. Napoleon is said to have been greatly impressed by Larrey's ingenuity. In the year 1813, an improved plan of Percy's was adopted for the entire French army, and later by the armies of nearly the whole of Europe. So far as the British army is concerned, it was not until 1897 that the War Office realized the importance of having an independent and properly trained set of men in the Army Corps. This was one of the lessons learned from the Boer War. Since 1907-8 the new organization of the Royal Army Medical Corps was brought into being by Sir Alfred Keogh. Baron Percy stated that the object of an ambulance service was as follows: "The art of preserving life should contest in activity and celerity with the art of destroying life" and this is the principle observed in the modern ambulance system.

In the British army medical organization three zones are established, the collecting zone, the evacuating zone, and the distributing zone. In the collecting zone the field ambulance comes into play, and by field ambulance is signified the whole establishment and not the ambulance wagon alone. The evacuating zone includes clearing hospitals, ambulance trains, advanced medical store depots, and sometimes stationary and general hospitals. The distributing zone lies partly in the war area, but comprises also hospital ships and hospitals in Great Britain.

In reviewing the modern ambulance system, it would not be too much to say that it has been almost revolutionized by motor and steam traction. Trains especially built for the purpose carry, when possible, the wounded to the base hospitals on the distributing zone. Motor ambulances are even more useful, for these can be depended upon when trains may fail.

Considering the character of the warfare, and the engines and agents of destruction employed, the wounded and sick, at any rate in France, and probably in Germany, are better cared for than ever before. The army medical service has developed *pari passu* with the progress of so called scientific warfare, and while a soldier stands more chance of being killed or maimed or of acquiring septic infection, it is some consolation, although a small one, to know that he is more likely to be patched up successfully and in every way properly treated surgically and medically, than in former wars. It is also pleasing to one's patriotism to note that of the ambulance services operating in France, the American service is stated to be the best organized and most efficient.

CHAIRS FOR CHILDREN.

There has been much agitation over the misfitness of school seats and desks, and there has doubtless been more or less correction of these sources of bad posture and of permanent deformity. Little or nothing is said, however, concerning the seat used in the home; the human sprout is often so tender that anything which causes it to be inclined from the normal, must be taken into account. The average child, who cares little or nothing for books, is influenced little by either school or home seats, but the child who likes to read, and who is disinclined (always with good reason, be it said) to active muscular exercise is the victim of ill shaped seats in both the school and the home. Of what use is it for the general practitioner or orthopedist to prescribe corrective exercises for stooping posture and round shoulders, if for many hours every day the patient is to occupy a framework which distorts the skeleton, and renders nugatory all therapeutic efforts?

Often there is not a comfortable or well fitting chair in the house for an adult, and for children there is no provision. Chairs are usually of two general kinds, big and little, those for adults and those for children of from two to five years. Styles in chairs vary, and the chairs we find in the home are practically always of the wrong shape for the growing child, and usually for the adult. To fit, a chair must conform in the curves of its back to the normal, but not exaggerated curves of the spine of the sitter. It must be of such a height that the feet can be planted comfortably on the floor and yet the knees will not be raised high above the level of the hips, and it must not be so deep that the pelvis does not readily come in contact with the back. The inclination should be such that the back of the sitter is really supported and not pushed forward when the body is set against it.

Manufacturers have made office chairs for adults

which support the back well, some of them adjustable, and perhaps the reason why there has been no effort to fit children is that there has been no demand. Perhaps some day, the dealer, if he cannot fit a child, will be able to take his measure for a suitable home seat, or at least furnish one that has an adjustable support. Meanwhile perhaps we can make some of our present chairs fit. This can be done by adjusting a suitable padding to the back, by using a stool for the feet, or by sawing off part of the legs if the chair is too high, or by piecing out if the chair is too low, and by sawing off the front of the seat, or padding the back in front if the chair is too deep. The product of this overhauling may not be a thing of beauty, but that matters little so it is a thing of comfort and body preservation.

A normal child, at rest in a misfit chair, is always for the time being, deformed; a normal child, at rest in a chair that fits, always assumes a correct posture. The child, unfortunately, is very uncomplaining about some things, and makes no outcry if his seat is not what it should be. Also, he makes no fuss if the table at which he works is too high or too low, or his book too heavy to be comfortably supported, if the light by which he reads is poor or badly placed. These matters should be taken into account in arranging conditions conducive to good posture, though they are of secondary importance.

Physical education is nothing more or less than the establishment of correct bodily habits, and the habit of assuming good posture is a most important part of the physical education of every child.

THE PRESENT VALUE OF RADIUM IN THERAPEUTICS.

As time passes, we are becoming familiar with the limitations of our several remedial agents in all fields of therapeutics, and, although radium is a new agent relatively speaking, so much work has been done with it that its scope of usefulness is becoming better understood. We are learning how to use it and its various forms of emanation; we are coming to a better realization of its value in certain definite fields. The report of the work of the Radium Institute of London for 1914, published by A. E. Hayward Pinch in the *British Medical Journal* for February 27, 1915, is of considerable interest in throwing light on the subject.

In the first place, some valuable points are given with respect to the method of applying the drug, and attention is called to the fact that both the drug itself in the form of one of its salts and its emanation exert precisely similar actions. A more satisfactory applicator has been devised, consisting of a flat plate to which a definite concentration of radium

is applied in the form of the sulphate, covered with a coat of varnish. Such applicators can be made in several strengths and are almost unlimited as to size, from the smallest up to one of twenty-eight square cm. in area. Another form of applicator which has given excellent service is the capillary tube filled with radium salt, so small that it will fit into the lumen of a needle for insertion into the tissues.

The matter of selecting the different types of rays and controlling the depth of the action of the radium by means of screens or filters, has been developed so that deep irradiation can now be secured with little or no effect on the overlying skin. The dose of the radiation has also been more accurately determined for different conditions.

More important, however, is the information gained by experience as to what types of disease may be expected to give favorable results from the use of this agent, and what types fail to respond. It has been found that many cases of epithelioma of the squamous cell type may be favorably influenced by proper exposure, and not a few apparent cures have been obtained. When the epithelioma involves the buccal, lingual, or pharyngeal mucosa it is usually very refractory to radium treatment. On the other hand, when the cancer is in the uterus the most satisfactory results can be obtained, better than by any other known method, not excepting surgery. In this lesion the radium not only cures the local growth, but seems to have a strong inhibitory action on glandular metastases. Little more than some degree of retardation of the progress of the disease may be expected from the use of radium in cases of breast cancer, and only slightly more marked beneficial action is usually encountered in rectal carcinoma. In prostatic carcinoma some benefit has also been noted, but the experience with this disease is yet too little for a definite expression of opinion.

There is one type of malignant disease which stands out from all others in its prompt response to the action of radium. That is rodent ulcer, provided that it is not of the excavating type with overhanging edges and a gelatinous base. A striking fact is that rodent ulcers which have been previously treated with x rays, carbon dioxide snow, zinc ionization, or other methods often respond very badly to radium.

Among the nonmalignant conditions in which radium has proved useful may be mentioned uterine fibroids, capillary nævi if they blanch easily under pressure, cavernous nævi, warts and papillomata, keloid, lupus erythematosus if early, lichenification of the skin, and pruritus. Lastly, cases of arthritis deformans in which marked cartilaginous or osseous

changes have not developed, are often much benefited by the daily drinking of 250 c. c. of radium emanation solution of at least one millicurie strength to the litre.

From the foregoing it is obvious that there are a few conditions in which radium is of the utmost value, and a considerable number in which it has more or less beneficial influence, but cannot be regarded as an essential method of treatment. Perhaps with further experience its field will become more limited, but its use will be more certain in conditions in which it is of value.

NE SUTOR SUPRA CREPIDAM.

The secretary of the navy has advanced, with all the intrepidity of the layman, upon the preserves of the navy medical corps. He seems to object to the system of prophylaxis which was established some years ago to check the ravages of venereal disease among the otherwise healthy and fit young jackies. The objection, as usual, is issued on high moral grounds and was no doubt based upon and confirmed by the receipt of hundreds of letters from fussy landmen, who were neither in the height of youthful physical condition nor fully informed as to the precise object of the prophylactic measures and the way in which they are carried out. The somewhat ludicrous picture seems to be drawn of a villainous Mephistophelian surgeon tempting an innocent young jackie to his downfall. As a matter of fact, the prophylaxis is the last attempt to save the young sailor, unmoved by warnings or moral suasion, from two devastating diseases, either one of which incapacitates him for his immediate work, forces him below par for several years, and may result in his winding up his career as a crippled pensioner of the Government. The principle involved has been the earnest object of study for years among the best medical minds of the armies and navies of the world, and the solution in our navy, if not the best possible, is the least objectionable and is remarkably efficient. Uninstructed lay meddling in these matters is more dangerous than that of a child with edged tools, and it is not too much to say that it might result in the ruin and defeat of our forces at some critical period in the future.

PRACTITIONERS WANTED BY THE BRITISH ARMY.

A letter in the *British Medical Journal* for March 13th from Alfred Keogh, director general of the army medical services, makes a strong appeal for medical men, young doctors for the front, those over forty years of age for home service. Expert

surgeons, ophthalmologists, radiographers, etc., will be welcomed, but the great demand is for general practitioners, which seems to show that epidemics of various kinds either are feared or are already rife. Forms for temporary commissions are obtainable of the Secretary, War Office, Whitehall, S. W., London.

News Items.

Changes of Address.—Dr. Abraham Stone, to 296 South Fifth Street, Brooklyn, N. Y.

Dr. M. Hoffman, from Weehawken, N. J., to 282 South Third Street, Brooklyn, N. Y.

Dr. J. Mendelevitz, to 279 South Second Street, Brooklyn.

Dr. Howard T. Langworthy, to 480 Franklin Avenue, Brooklyn.

Dr. Charles S. James, to Rooms 706-708 Brandeis Theatre Building, Omaha, Neb.

The Rockefeller Foundation Health Commission.—The International Health Commission of the Rockefeller Foundation, which succeeded the Rockefeller Sanitary Commission on January 1, 1915, announces the removal of its headquarters from Washington, D. C., to 61 Broadway, New York.

Atlanta Neurological Society.—This society was organized in Atlanta, Ga., on February 11th, and the following officers elected to serve for the first year: President, Dr. E. Bates Block; vice-president, Dr. Hansell Crenshaw; secretary, Dr. Lewis M. Gaines. The society will meet on the second Thursday of each month.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Tuesday, March 30th, Society of Normal and Pathological Physiology; Thursday, April 1st, Obstetrical Society; Friday, April 2d, Kensington and Southeast Branches of the Philadelphia County Medical Society.

East Boston Medical Association.—The leading physicians of the eastern section of Boston met on the evening of March 10th, and organized under the name of the East Boston Medical Association, with the following officers to serve for the first year: President, Dr. Frank Tilton; vice-president, Dr. Robert Bonney; treasurer, Dr. A. L. McLaren; secretary, Dr. J. D. Taylor.

New York Nose, Throat, and Lung Hospital.—A clinical society has been organized at this hospital, with the following officers: President, Theodor Blum, M.D., D.D.S.; vice-president, Vincent J. Orlando, M.D.; secretary, John L. Courier, D.D.S.; treasurer, T. D. Sullivan, M.D. The first meeting of the society will be held at the hospital on Thursday evening, April 15th, at 8:15 o'clock.

Meeting of Obstetrical Societies in Philadelphia.—On Thursday evening, April 1st, the New York Obstetrical Society will be the guests of the Philadelphia Obstetrical Society. The meeting will be held in the Hotel Rittenhouse and will be preceded by a dinner. During the morning and afternoon a series of clinics on obstetrical and gynecological surgery will be given by members of the Philadelphia Obstetrical Society.

Society of American Bacteriologists.—The council of this society has decided to hold a special summer meeting in San Francisco, Cal., on August 3d, 4th, and 5th. The chairman of the local committee of arrangements is Dr. Wilfred H. Manwaring, Stanford University, California. The officers of the society are as follows: President, Dr. D. H. Bergey, of the University of Pennsylvania, Philadelphia; vice-president, Dr. John Weinzirl, of the University of Washington, Seattle; secretary-treasurer, Dr. A. Parker Hitchens, of Glenolden, Pa.

American Association of Pathologists and Bacteriologists.—The annual meeting of this association will be held in St. Louis, Mo., April 2d and 3d, under the presidency of Dr. Leo Loeb. The meetings will be held in the pathological department of the Washington University Medical School, and in the library of the St. Louis University. On April 1st the annual meeting of the American Association for Cancer Research and the International Association of Medical Museums will be held in laboratories of the Washington University Medical School.

An Exception under the Harrison Act.—The Board of Health calls attention to the fact that while the Harrison Act provides that a record of certain drugs dispensed must be kept by each physician in a suitable blank book, the record showing the date, kind and quantity of drugs dispensed, and the name and residence of the patient to whom the drugs were given, paragraph A, Section 1, contains this important exception: "Except such as may be dispensed or distributed to a patient upon whom such physician, dentist, or veterinary surgeon shall personally attend."

Doctor Hurty Honored.—Dr. J. N. Hurty, of Indianapolis, was the guest of honor at a banquet given at the Claypool Hotel, Indianapolis, on Saturday evening, March 13th, to celebrate the nineteenth anniversary of his appointment as State Health Commissioner. Several hundred physicians from Indiana and other States attended the banquet, and hundreds of telegrams were received from prominent persons unable to attend. Governor Ralston acted as toastmaster, and among those who spoke were Vice-President Thomas R. Marshall, Dr. Alexander R. Craig, of Chicago, President William E. Stone, of Purdue University, Dr. Victor C. Vaughan, of Ann Arbor, Mich., President William Lowe Bryan, of Indiana University, Dr. William A. Evans, of Chicago, Dr. George T. McCoy, of Columbus, and Dr. Charles A. L. Reed, of Cincinnati.

New York's Death Rate Far Below Last Year's Figures.—The death rate for the first twelve weeks of 1915 was 14.09 in 1,000 population, against a rate of 15.53 during the corresponding period of 1914. During the week just passed there were 1,743 deaths, making a death rate of 15.66 in 1,000 of the population against 17.57 deaths and a rate of 16.42 for the corresponding week of 1914. Deaths from measles and the diseases which always accompany infection by measles, namely acute bronchitis and bronchopneumonia, both showed a much reduced mortality. The number of deaths attributed to influenza was 11 against 24 in the corresponding week of last year. This decreased mortality from influenza was accompanied by decreased mortalities from pulmonary tuberculosis and Bright's disease of the kidneys. The mortality from the infectious diseases was slightly below that of the corresponding week of 1914.

Bulletin of the New York Post-Graduate Medical School and Hospital.—The first number of this periodical, which will be issued monthly by the board of directors of the New York Post-Graduate Medical School and Hospital, has appeared under date of March 15, 1915. The *Bulletin* is dedicated to graduate medical instruction in general and specifically to graduate medical instruction at the New York Post-Graduate Medical School, its purpose being to keep its own students informed regarding the progress of postgraduate study and to draw attention to particular, general, or special forms of instruction as given in that institution. The first number of the *Bulletin* contains an article on Graduate Medical Instruction, by Dr. James F. McKernon, president of the school and hospital, a schedule of clinics to be held during the spring session at the hospital, an illustration showing the clinic room of the nose and throat department, and a condensed list of the special courses given at the institution.

To Fight Tuberculosis Among Workmen.—A new campaign for closer cooperation with labor unions and other groups of workmen is announced by the National Association for the Study and Prevention of Tuberculosis. A committee has been appointed with Dr. Theodore B. Sachs, president of the Chicago Tuberculosis Institute, as chairman, to formulate plans for immediate and future action. Among the members of the committee are: Dr. William Charles White, medical director of the Tuberculosis League of Pittsburgh, and Dr. David R. Lyman, superintendent of the Gaylord Farm Sanatorium, Wallingford, Conn. As the first step in the campaign, a special health bulletin has been prepared for the labor papers, and will be sent out monthly in cooperation with members of the International Labor Press Association. A second step is an investigation into the various special experiments of cooperation between workmen and the antituberculosis movements that have been carried on in this country. The work of various tuberculosis relief associations are being studied and reported upon. These reports will be made the basis for recommendations and further study in industrial communities throughout the country.

White Haven Sanatorium.—At the annual meeting of the Free Hospital for Poor Consumptives and White Haven Sanatorium Association, held on March 9th, Dr. Lawrence F. Flick was reelected president, and the other officers were also reelected, as follows: First vice-president, Dr. Joseph Walsh; second vice-president, Dr. M. E. Kemmerer; treasurer, Dr. Edward A. Miller; secretary, Miss Helen C. McDevitt. It was announced that during the past year 558 patients had been treated at the hospital.

Pennant Winners in Record Sale of Christmas Seals.—The State Charities Aid Association announces that the winners in the New York State competition to sell the greatest number of Red Cross Seals per capita are Garden City, Freeport, Corning, New Rochelle, and Rochester. Banners will be presented to the tuberculosis organization which conducted the sale in each of these places. The total number of seals sold in New York State, outside of New York city, was 8,525,000, an increase of 1,700,000 over the previous record total, in the 1913 sale.

Gifts and Bequests to Hospitals.—A contingent bequest of the \$135,000 estate of the late Mary Rushton is made, in equal parts to the University Hospital and the Philadelphia Home for Incurables.

By the will of Mrs. Augusta Jones, offered for probate in New York on December 14th, St. Luke's Hospital will receive \$7,000.

Mrs. Ezra H. Linley, of St. Louis, has given an endowment fund of \$10,000 to the Barnard Free Skin and Cancer Hospital, St. Louis.

By the terms of the will of Rebecca H. Hobbs, of Waltham, Mass., the Waltham Hospital will receive \$5,000 and the Waltham Baby Hospital, \$1,000.

The will of Robert Ives Gammell contains a bequest of \$12,000 for the Rhode Island Hospital, at Newport.

American Aid for the Medical Profession in Belgium.—Dr. F. F. Simpson, of Pittsburgh, treasurer of the Committee of American Physicians for the Relief of the Belgian Profession, reports that the following contributions to the fund were received during the week ending March 20, 1915: Sebastian County Medical Society, Fort Smith, Ark., \$15; Dr. F. W. Johnson, Boston, \$25; Dr. E. P. Quain, Bismarck, N. Dak., \$10; Dr. N. O. Ramstad, Bismarck, N. Dak., \$10; Dr. Haven Emerson, New York, \$15; Dr. Edward B. Angell, Rochester, N. Y., \$10; Dr. T. A. Davis, Chicago, \$25; New Bedford Medical Society, New Bedford, Mass., \$50; Dr. Newton B. Waller, New York, \$5; Dr. Charles G. Eicher, McKees Rocks, Pa., \$5; Dr. William H. Perry, Sterling, Ill., \$5; Dr. Frederick A. Spafford, Flandreau, S. Dak., \$10; Dr. George L. Johnson, Newfölden, Minn., \$1; Salt Lake County Medical Society, Salt Lake City, \$100.50; Dr. and Mrs. Clem D. McCoy, Kenton, Ohio, \$50; Dr. E. A. Weiss, Pittsburgh, \$10; Dr. Hubert Clayton, Hopkins, S. C., \$5; Dr. C. E. Goodman, Virginia, Minn., \$5; Tri-County Medical Society, Copiah-Lincoln-Pike Counties, Miss., \$10; Dr. Harold W. Dana, Boston, \$25; receipts for the week, \$301.50.

Postgraduate Instruction in Contagious Diseases.—For the information of those who have registered for the course of instruction in contagious diseases held at the Willard Parker Hospital, a schedule has been prepared showing in detail the subjects taken up in the bacteriological instruction given on the two successive Friday afternoons. This schedule is as follows:

First day: 2 p. m.—Doctor Williams, Research Laboratory, etiology and diagnosis of whooping cough, mouth infections, and diagnosis of rabies; 2:30 p. m.—Doctor Nicoll, Research Laboratory, biological products distributed by the laboratory and their application; 3 p. m.—Miss Wilcox, Research Laboratory, bacteriological diagnosis of diphtheria and tetanus, production of tetanus and diphtheria toxin; 3:30 p. m.—Doctor Fielder, Vaccine Laboratory, production and use of vaccine virus, Pasteur treatment of rabies.

Second day: 2 p. m.—Doctor Krumwiede, Research Laboratory, intestinal infections, methods of diagnosis; 2:30 p. m.—Doctor Banzhaf, Research Laboratory, concentration of antitoxin; 2:45 p. m.—Doctor Biggs, Research Laboratory, antitoxin testing and standardization; 3 p. m.—Miss Noble, Research Laboratory, examination of water and oysters; 3:15 p. m.—Doctor Schroeder, Research Laboratory, bacteriological control of milk supply; 3:45 p. m.—Doctor Neil, Plague Laboratory, meningitis, diagnosis and treatment.

Personal.—Dr. J. H. Marcus, of 228 South Second Street, Brooklyn, who was operated upon for appendicitis in St. Marks Hospital, Manhattan, on March 5th, returned to his home last Friday and a speedy recovery is expected.

Dr. Clayton D. Fretz, of Sellersville, Pa., has been elected a member of the board of trustees of the Norristown State Hospital.

Dr. J. Walter Vaughan, of Detroit, has been appointed a member of the Detroit Board of Health, to succeed Dr. Charles Oakman.

Dr. Frank B. Mallory, assistant professor of pathology at Harvard Medical School, has been appointed consulting pathologist to the Boston Dispensary.

Dr. John Lawrence Yates, of Milwaukee, has been awarded the Samuel D. Gross prize of the Philadelphia Academy of Surgery for the year 1915 for his essay on Surgery in the Treatment of Hodgkin's Disease. The amount of the prize is \$1,500.

Dr. C. E. Holland, of Columbus, Ohio, has resigned as registrar of the State Bureau of Vital Statistics, and Dr. Morton Bland, of Bellevue, has been appointed his successor.

Dr. Mary E. Lapham, of Highlands, N. C., delivered an address recently before the Cincinnati Academy of Medicine on Five Years' Experience with Artificial Pneumothorax.

Meetings of State Medical Associations to Be Held during the Month of April.—Medical Association of the State of Alabama, at Birmingham, on April 20th to 23d; Dr. B. B. Sims, of Talladega, president, Dr. J. N. Baker, of Montgomery, secretary.

Medical Association of Georgia, at Macon, April 21st, 22d, and 23d; Dr. W. B. Hardman, of Commerce, president, Dr. William C. Lyle, of Augusta, secretary.

Louisiana State Medical Society, at Lake Charles, on April 20th, 21st, and 22d; Dr. George S. Bel, of New Orleans, president, Dr. L. R. DeBuys, of New Orleans, secretary.

Medical and Chirurgical Faculty of Maryland, at Baltimore, on April 27th, 28th, and 29th; Dr. Randolph Winslow, of Baltimore, president, Dr. John Rürh, of Baltimore, secretary.

Medical Association of the State of New York, at Buffalo, April 27th, 28th, and 29th; Dr. Grover W. Wende, of Buffalo, president, Dr. Wisner R. Townsend, of New York, secretary.

South Carolina Medical Association, at Greenwood, April 20th, 21st, and 22d; Dr. E. F. Parker, of Charleston, president, Dr. Edgar A. Hines, of Seneca, secretary.

Tennessee State Medical Association, at Nashville, on April 13th, 14th, and 15th; Dr. S. M. Miller, of Knoxville, president, Dr. Olin West, of Nashville, secretary.

The Health Department Aids in the Diagnosis and Treatment of Meningitis.—The attention of the physicians of New York city is called to the fact that the department of health in its Division of Preventive Medicine and Specific Therapy (Bureau of Laboratories) maintains a staff of physicians and bacteriologists who have made a special study of meningitis. The services of this staff are at the disposal of the practising physicians of this city in the diagnosis and treatment of meningitis and meningeal conditions. The patients are seen only in consultation for the department has no desire to supplant the private physician in charge of the case. Moreover, since in most instances the family cannot give adequate assistance in doing a lumbar puncture and administering serum, the presence of the family physician is most valuable. A number of physicians, not knowing the department's policy, have requested members of the meningitis staff of the department to do lumbar puncture alone. Such requests have invariably been refused. The department's physicians will consult with the attending physician as to the advisability of puncture and not merely do a puncture by request. The importance of early treatment cannot be too strongly urged, and this depends on prompt and accurate bacteriological diagnosis. Naturally, during an epidemic, diagnoses are made much earlier than in sporadic cases. Some indication of the value of specific serum treatment may be gained from the fact that during the past eighteen months, with many cases seen comparatively late, the mortality has been only 26 per cent. Any physician desiring the service of this staff in the diagnosis and treatment of meningitis or meningeal conditions should telephone Stuyvesant 1600.

Special Article.

THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION HOSPITAL.

When the Panama exposition was still young, President Moore, feeling that some medical provision must be supplied for the workmen who were to be employed in its making, requested Surgeon General Blue at Washington, D. C., kindly to appoint a man capable of organizing and maintaining a proper hospital corps for the exposition. The choice fell on Dr. R. M. Woodward, a man who has faithfully served his country for over twenty-seven years and was at that time connected with the



FIG. 1.—Dr. R. M. Woodward, chief surgeon of the Panama-Pacific Exposition.

Marine Hospital in San Francisco. Mr. Moore gave him a few rooms in the rear of the Service Building (the first building erected on the grounds) and permission to equip the hospital. His assistants are Dr. I. G. Weldon and Dr. W. N. Jones.

First to arrive was a sewing machine, and with this beginning Doctor Woodward began to furnish his space. His argument was, that physicians and nurses from all over the world would expect to find the most up to date apparatus of every kind. He suggested that these be working models and at the end of the exposition returned to the donors, subject to ordinary wear and tear. This idea met with quick and ready response, and on February 18, 1914, under the auspices of the United States Public Health Service and through the untiring efforts of Doctor Woodward, the hospital was opened. Since that date, to March 1, 1915, the number of patients treated have been twenty-five hundred.

One of the most interesting features probably will be the medical library. Doctor Woodward, himself a literary man, is more than anxious that visiting physicians will see and jot down the names of books which later they will care to read. The

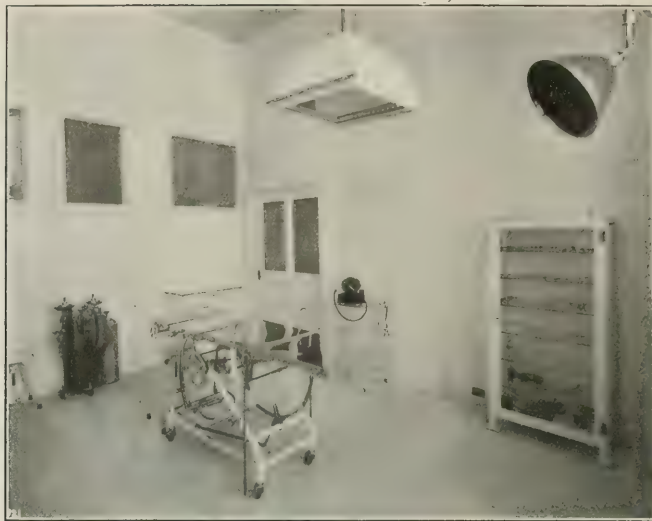


FIG. 2.—Surgery.

sum total of last year's additions to medicine and surgery—as far as that science may be contained in books—is represented in the library. It occupies one small room in a rather inconspicuous corner of the service building, but there is probably no other library of similar importance in the entire world.

Additions to the library within the past few days have brought the total of books to a little over a thousand. All of the medical book publishers of consequence of the United States have contributed their latest publications to the collection, with the result that the most recent advances in every branch of medicine that have been recorded in book form are included in the library. The books are contributed for the interest of physicians and others who visit the exposition, and as exhibits for award in competition with the other exposition exhibits. Before the breaking out of the war a large number of books by German authors were collected; many of them had been published only a few weeks.

Practically all of the equipment of the hospital has been contributed in the same way, all of its apparatus and appliances being of the very latest design and invention. Such equipment as was not forthcoming from this source has recently been

purchased with a view to preparing the hospital for any emergency that might occur during the exposition. It will be able to handle anything short of a great catastrophe, and the chances of such an accident at the exposition are altogether outside the bounds of probability. There is a microscope well worth seeing; a sterilizing company have working models heated by electricity; all ligatures needed until the close of the exposition are to be supplied free; medicines and chemicals will also be furnished gratis by large manufacturing firms.

The operating room, is, in every way, complete, and has a system of lighting which is all a surgeon could wish for; a light which is cool, overhead, and an operating reflector of the latest pattern make the

surgeon's tasks easier. Each ward has a different system of lighting. The beds, mattresses, pillows, slop buckets, in fact everything is of the latest pattern. Perhaps the most costly outfit in this hospital is the x ray room. Apparently no expense has been spared to make this the showplace; all the woodwork is of solid mahogany and all metal parts, even of the switchboard, are gold plated.

Patients are entered by a card system, minutely recorded. Contractors are obliged to carry insurance on their men, so when accidents occur, as they



FIG. 3. X RAY ROOM.



FIG. 4.—Service Building, Panama-Pacific Exposition.

are bound to, the men or those dependent on them, are provided for. Each contractor has a hospital already designated to which his men are to be transferred after they leave the Emergency Hospital.

Doctor Woodward has, beside his two assistants, two nurses. Miss Elizabeth Scott is head nurse, assisted by Miss Berthleen Caldwell. Later they expect to have six nurses in all. The hospital can accommodate fifteen patients at one time. At present it is exclusively for the use of men and women working within the grounds, but later, after the opening of the exposition it will be for any visitor who needs medical aid. All sorts of accidents may

occur, and the exposition is certainly adequately equipped in its beautiful hospital to care for any emergency.

The trip of any physician visiting the exposition will not be complete until he has thoroughly investigated the Exposition Hospital. There are no special visiting days or hours; visitors are always welcome. It is in the Service Building, at the Fillmore Street entrance.

The medical period of the exposition will be from June 14th to July 3rd. The American Medical Association will meet in San Francisco from June 21st to June 26, 1915.

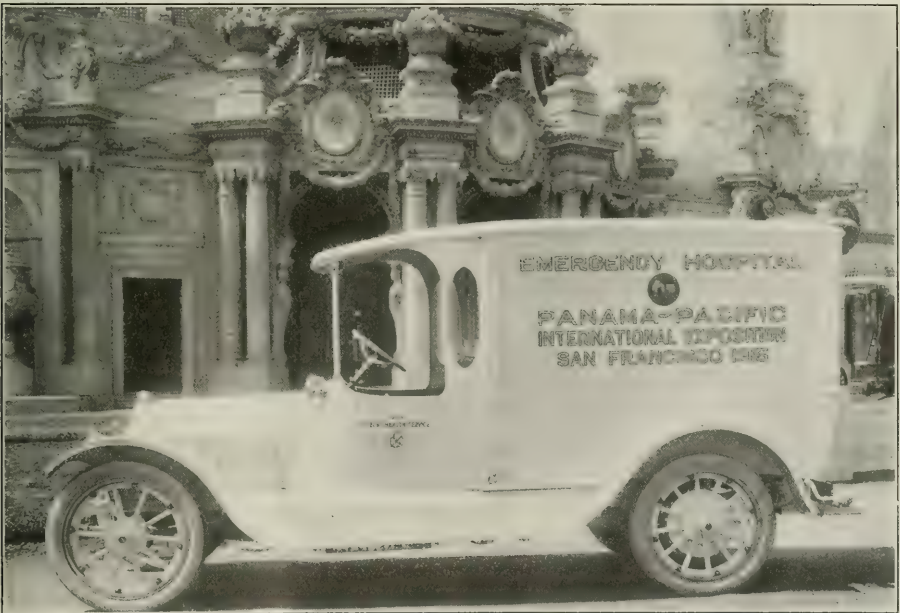


FIG. 5.—The Emergency Hospital ambulance.

Pith of Current Literature.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

January 16, 1915.

Hereditary Relations between Alcoholism and Epilepsy, by Jaroslav Stuchlik.—These relations are shown by a study of the family histories of 176 epileptics, in some cases up to five generations. Alcoholism was found in one or both parents in thirty-six per cent., in the grandparents in thirty-eight per cent., while epilepsy was present in the parents only in 4.1 per cent. and in the earlier ancestors in only 6.4 per cent. Nearly half of the epileptics were found to have at least one alcoholic progenitor. [When we consider the habits of all men throughout the world as regards drinking only a few generations ago, would we be very far off if we stated that every living man, whether epileptic or not, could find at least one alcoholic among his progenitors if he searched closely?—Eds.]

January 30, 1915.

Catastrophe Medicine, by H. Zanger.—This paper is based on observation in Switzerland of soldiers invalidated there in the present war. The effects produced by explosions of shells in trenches or buildings are much like those seen after earthquakes, and accidents in mines, but more accentuated because in the latter the men are in their normal condition, while in war they have been under a long continued intense physical strain and excitement. The heart and nervous system suffer most, and sometimes actual psychoses are developed as a result of what the men have undergone.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

December 10, 1914.

Treatment of Tetanus, by M. Lewandowsky.—Death is caused by paralysis of the respiratory centre through direct action of the tetanus toxin. It is suggested, therefore, that good might be obtained by injecting antitoxin into the region of the respiratory centre. The method elaborated by Jonnesco for high intraspinal anesthesia might well be used and doses of about two c. c. of antitoxin, containing twenty antitoxic units, could well be injected daily into the lower cervical region. It should be understood that these injections ought to be added to the other methods of administration of antitoxin usually employed and should not supplant any of them.

Abderhalden Serum Reaction Toward Liver Tissue in Alcoholics, by Erich Martini.—The serums of nine alcoholics were tested by Abderhalden's method against liver tissue and distinctly positive reactions were obtained in seven of the cases. The other two reacted negatively. Four of the positive serums were from patients with enlarged livers, while the two who gave negative reactions had no evidence of liver changes. Eight control serums, from widely different diseased conditions, gave negative reactions. Although the figures so far obtained are too small to warrant any definite conclusions, it seems probable that the Abderhalden test will be found of diagnostic value in cases of alcoholism even before there is any evidence from symptoms or physical signs that the liver has been affected.

Sterilization of Tuberculous Sputum by Phenol Derivatives, by Th. Messerschmidt.—Recently several firms have brought out certain chlormeta-cresol preparations as disinfectants asserting that they are less disagreeable in odor, and equally or more effective, as antiseptics and germicides than the common cresols in use. Such preparations are known as grotan, sagrotan, and phobrol. Certain observers have reported very favorably on their germicidal action; the present writer has sought to test the accuracy of these reports. By means of careful experiments with human tuberculous sputum, using adequate controls and a perfected technic, he finds that none of these preparations has the strong action claimed for it. Thus, solutions of 2.5 per cent. of phobrol do not kill tubercle bacilli in the sputum even after an exposure of ten hours' duration. Concentrations of from five to ten per cent. are required, but are not effective for shorter exposures. Exposures for twenty-four hours to four per cent. solutions of grotan fail to kill the bacilli; the same thing is true of sagrotan. Antiformin, added to the sputum, does not favor the actions of these substances.

December 17, 1914.

The Antecedent Stages of Diabetes, by Peter Bergell.—In the examination of the urine of children of diabetics, the author occasionally observed in them an increased capacity for dissolving the oxyhydrate of copper. This led him to study the solvent power of different urines for this substance with the following results. The solvent power of human urine for oxyhydrate of copper does not depend on the presence of small amounts of glucose. If the urine is diluted to a specific gravity of 1012, the solvent power of the urine for the copper is found to be very slight in persons with normal carbohydrate metabolism. In children, the solvent power is occasionally decidedly raised. Among the relatives of diabetics the copper solvent power of the urine is found to be elevated in at least two thirds of the cases examined. Of persons who give this reaction, those with the strongest reactions are to be considered in the antecedent stage to diabetes. An effort was made to determine the nature of the substance or substances which brought about the increased solvent power of the urine in these cases; most likely the aldoses and ketoses of higher molecular weight are the cause. The relation to diabetes is further shown by the fact that the withdrawal of carbohydrates from the diet, or their marked reduction is followed by a disappearance of the solvent property of the urine. The opposite is also true—increased in the intake of carbohydrate leads to increase in the intensity of the reaction; in the more pronounced cases traces of sugar sometimes appear in the urine. From these observations the author suggests that persons who have a diabetic ancestry and who show this urinary reaction should be treated the same as persons with the slighter grades of diabetes. The negative reaction should be maintained by proper adjustment of the diet. The ability to begin thus early in diabetes with proper dietetic regulations should lead to the prolongation of the time of onset of many cases, and probably will play a material part in prolonging the life of persons so afflicted.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

Február, 15, 1915.

New Treatment of Tuberculous Meningitis, by Juan Bágicalupo.—Tuberculin was injected directly into the dural sac in three cases; one case was hopeless, the patient dying on the third day after the injection; the other two patients completely recovered within twenty days. The temperature did not rise after the injection; a fall of one degree was noted; there was no subsequent rise. The doses were similar to those administered in other forms of tuberculous. Slightly more than one mgm. of old tuberculin can be given with safety; if there is no improvement at the end of twenty-four hours, a slightly larger second dose may be given. Cerebrospinal fluid is the best vehicle.

Treatment of Spina bifida, by Carl Hennemann.—In the case reported, a child at birth manifested a tumor in the sacral region about the size of a pear. When three weeks old the sac was punctured, the fluid evacuated. This was repeated at the end of a week and for a third time at the end of another week. A syringe of tinctura iodi and absolute alcohol, equal parts, was injected, under aseptic precautions, after every tapping. Eight days after the third injection the tumor had disappeared and its place was taken by hard, shrunken skin. No influence on the paralysis of the lower extremities had been noticed at the end of twelve weeks. Of interest is the effect on the fontanelles. The large fontanelle increased to about twice its normal size; the small fontanelle to that of the normal large fontanelle, and the frontal and coronary sutures to a width of about 1.5 cm.

Plaut-Vincent's Pharyngitis and Stomatitis, by F. Reiche.—The diagnosis is made on the finding of the organism with the negative finding of the diphtheria bacillus. In a series of about 4,000 cases of angina, this form was observed 139 times. The history of a case is given in which the constitutional symptoms were very severe, the patient complaining mostly of violent headache which did not respond to pyramidon or the bromides. The fever curve, the presence of a leucopenia and an enlarged spleen, and the paralysis of the abducens nerve made the differential diagnosis between this condition and typhoid on the one hand and tuberculous meningitis on the other hand quite difficult. The blood, however, always showed an eosinophilia of over six per cent., and this was decidedly against the diagnosis of typhoid. Ulceration of the mouth was a prominent symptom and the resulting scars gave the appearance of a luetic affection. The secretion from the ulcers was negative for syphilis, as was also the Wassermann and the examination of the cerebrospinal fluid. Leucopenia is quite rare in this condition, the blood picture usually showing a normal number of leucocytes or a leucocytosis. Unilateral abducens paralysis occurring as a complication of this disease had never been reported before. It occurred on the twenty-sixth day of the disease and disappeared after three and a half weeks. A careful search was made at the time for diphtheria bacilli, but they could not be demonstrated. The history of another case which presented the picture of a grave pernicious anemia complicating this form of angina is given. The patient had shown a de-

cided improvement up to the last two weeks, but died as a result of cardiac weakness. Of interest in this case was the youth of the patient, eleven years. Whether the anemia bears a relationship to this form of angina has not been definitely determined. Some of the fatalities reported by other authors show a blood picture similar to that of pernicious anemia. The months of the year in which this form of angina is most frequent are July, August, and September.

BULLETIN DE L'ACADÉMIE DE MEDECINE.

January 19, 1915.

Operative Treatment in Traumatism of Nerves, by E. Delorme.—Surgical treatment in a large proportion of cases of nerve wounds by bullets or shell fragments is recommended. The operation should always be done after complete subsidence of inflammation, but without losing time with adjuvant measures, such as electricity, when it becomes plain that these cannot have useful results. If a nerve has been severed, perforated, grooved, or bruised, and particularly if the wound has been primarily infected, the masses of dense, fibrous tissue which interrupt the continuity of the nerve filaments should be replaced by a linear, surgical scar, permeable, and therefore favoring repair of the nerve. In reuniting the nerve ends the precise point at which fibrous tissue stops should be determined by histological sections or careful dissection, and removal of tissue discontinued when a regular network of healthy nerve fibres is seen. To insure due approximation of the nerve ends after extensive removal of tissue, the nerve should be freed from the surrounding tissues for some distance above and below the point of interruption, and the limb placed in that position which will procure greatest relaxation of the nerve. To maintain this position, a plaster dressing should be applied and allowed to remain for three weeks or longer. No pathological portion of a nerve should be spared in the operation, whatever be the length of the portion of nerve to be sacrificed. In the few instances where approximation of the nerve ends cannot be secured in the two ways referred to, a cylindrical mesh of catgut may be inserted between the nerve ends. Delorme's recent experience covers ninety operations on traumatized nerves.

PRESSE MÉDICALE.

January 28, 1915.

Arsenobenzol in the Treatment of Gangrene, by G. Lacapère and C. Lenormant.—The cases of gangrene treated included instances of gangrene following frostbite, rapidly extending septic gangrene of traumatic origin, and bedsores. Though arsenobenzol has a specific action only in gangrene caused by associated fusiform and spirillar organisms—as in Vincent's angina—it is of value in other forms, being a powerful, certain, rapidly acting antiseptic, arresting tissue necrosis and accelerating repair. In less severe cases, in which gangrene was limited to the toes, a dressing wet with a one in 1,000 solution removed the gangrenous odor, and hastened granulation; hydrogen dioxide had been without effect. In cases of more extensive gangrene, intravenous injections of 0.3 or 0.4 gram of arsenobenzol were given, at times with beneficial results. In one case especially of traumatic gangrene of the gase-

ous type, after amputation, with fever and suppuration and many areas of necrosis, local and intravenous use of the drug produced almost immediate benefit: the fever dropped, the stump healed.

RIFORMA MEDICA.

February 15, 1915.

Influence of Oxidazol on Nitrogenous Elimination, by A. Jappelli.—Oxidazol is the nucleinate of manganese; has the power of activating intraorganic oxidation, while maintaining the structural unity of the red corpuscles. Salts of manganese may be considered as metallic ferments; they exert a favorable action on alcoholic fermentation. L. Ferrannini has shown that oxidazol has a favorable influence also on the biological properties of the blood serum which depend on the bone marrow, but that it does not modify the natural resistance of the individual against intoxications. Jappelli's experiments show that there is very little action on nitrogenous elimination.

Intermuscular Fibrolipoma of the Thigh, by D. Taddei.—In presenting a case, a review is made of the literature. The comparative rarity of this form of new growth is shown by the fact that only some thirty-five cases have been reported.

Late Hereditary Visceral Syphilis, by V. Bellizzi.—Two cases are described, one in a girl of seventeen years with involvement of spleen and liver, the other in a woman of thirty-eight who had syphilitic aortitis and syphilitic disease of the lungs, liver, spleen, and kidneys. In the second case, there was a serofibrinous pleurisy apparently of the same hereditary syphilitic nature, which is an extremely rare condition, and one which, up to this time, has never been reported in the literature. There were, in this case, many evidences of infection—Wassermann, dwarfish stature, prominent frontal eminences, saddle nose, dental polymorphism, exaggerated tibial curvature, enlargement of the epiphyses of the long bones, and thoracic rosary.

Achondroplasia and Geroderma, by M. Bertolotto.—This is a comparison of the characteristics of the two diseases showing rather clearly their antagonistic nature. Radiography and anthropometry are of great service in the diagnosis. Geroderma has now a definite significance as an expression of a primary lack of function in the sexual glandular system, whereas achondroplasia seems to be due to a primary exaggerated function of that system.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

February 21, 1915.

Early Diagnosis of Myocardial Insufficiency, by M. Flores-Estrada.—The prognosis in myocardial insufficiency, as in phthisis, depends greatly on the early recognition of the condition. There are many methods of testing the functional power of the heart muscle. Stahelin resorts to exercise, Max Herz tests the heart action after prolonged muscular movements of the forearm, Mendelson watches carefully the length of time required for the heart beat to return to normal after exercise. Katzenstein's method is digital compression of the femoral arteries and noting the effect on pulse rate and blood pressure. Mackenzie, on the other hand, notes the effect on the heart function of the

ordinary occupational duties of the individual. An indirect method of diagnosis is by determining the length of time required for the elimination of a given quantity of sodium chloride. This is called the Vaquez-Digne method. Finally a method notable both for its simplicity and its originality is that of Pocobutt, which is based on the difference between the axillary and the rectal temperature. Normally this difference is from 1° to 3° , whereas in myocardial insufficiency it is one degree or over. This method readily distinguishes true cardiac asthma from the bronchial form. The explanation is that in muscular insufficiency of the heart, the vital organs are supplied with blood at the expense of the cutaneous system. The methods enumerated, together with the estimation of systolic blood pressure, must be used to insure the early recognition and proper treatment of this form of cardiac insufficiency.

BRITISH JOURNAL OF CHILDREN'S DISEASES.

December, 1914.

Nervous Cretinism, by Major R. McCarrison.—Symptoms are a combination of congenital myxedema with congenital cerebral diplegia. Nystagmus may occur; squint is common. The essential factor is the defective thyroid function in the mother. It is of importance to protect the child during the period of gestation from the effects of infectious diseases, especially helminthiasis and intestinal toxemia, fright and mental strain. Defective food supply is also a factor and the worst cases of the disease are seen in those children who are given artificial food instead of mother's milk. In nurslings cases are usually not detected until after lactation or until the lapse of the period when breast feeding should cease. Intestinal disorders from parasites bear a close relation to the function of the thyroid. Certain intestinal anaerobes have a bad effect on the thyroparathyroid mechanism; their growth should be inhibited by administration of *Bacillus lacticus bulgaricus*, by intestinal antiseptics, and cleansing irrigations of one per cent. ichthylol or other antiseptic solutions.

Early Development of Myositis ossificans progressiva multiplex, by F. Parker Weber and Alwyne Compton.—The child aged seven and a half months had peculiarities of the feet and hands and a bony spicule about one half inch in length was attached to the back of the middle of the left clavicle and extended upward so that its free end was felt directly under the skin. The big toes were everted (hallux valgus), were abnormally short and overlapped by the other toes. The thumbs were turned inward across the palms and were abnormally short and slender. A year later hard, painless swellings began to develop under the skin in different portions of the body. They apparently involved the muscles and the subcutaneous tissues, as the skin could be moved freely over them. A slight enlargement of the superficial veins was noticed over the lumps. X ray examination failed to show evidence of calcification and the diagnosis of myositis ossificans progressiva was made.

January, 1915.

Tetanus Cured by Antitetanic Serum, by J. Comby.—Intracerebral injections of antitetanic

serum after trephining of the skull have had variable success. The same is true of intraspinal injections. In making intraspinal injections, large doses should be employed. In the cases of tetanus reported, the patients received injections of antitetanic serum subcutaneously. The periods of incubation were long, eighteen, nineteen and twenty days. Cases having shorter periods of incubation are more virulent. The doses employed were forty c. c. for an initial dose, the following doses being ten to twenty c. c. The cure in all of the cases was complete.

Acute Pemphigus Complicating Scarlet Fever, by J. M. Robertson-Ross.—On the thirty-second day of an attack of scarlet fever several small blisters appeared on the front of the right ankle and the temperature rose to 102° F. This was followed by an extensive bullous eruption on the back and to a less extent on the limbs the following day. The lesions commenced as small, pink, slightly raised patches with a ring of small vesicles at the periphery. They increased in size and coalesced. On the fourth day following the appearance of the eruption, it was scattered over the back, the right shoulder, the anteroexternal surface of the right arm, the front of the right ankle and the outer side of the left leg. It subsequently appeared on the left side of the forehead and scalp. The mucous membranes remained free. The contents of the bullæ were at first clear, becoming turbid later. The cultures were at first sterile; later they showed the presence of staphylococci. In forty-eight days all the bullæ had disappeared. The temperature during this time ranged between 99° and 102° F. There was slight local pain and the only treatment applied to the lesions was boric acid dusting powder. Liquor potassii arsenitis was given internally, the initial dose being three minims, increased to eight minims, three times daily; ferri et ammonii citras five grains, three times daily, was also administered. From the course and duration of the eruption the diagnosis of acute pemphigus seems warranted, although its occurrence during scarlet fever is unique.

Edema and Pemphigus in Convalescence from Scarlet Fever, by R. Loy Wilcox.—The patient, a girl aged thirteen years, had gone through an attack of scarlet fever, and three days after getting up manifested marked edema of the ankles and wrists. No other signs or symptoms appeared with the exception of a slight petechial eruption which was general but most marked on the thighs and legs. The edema passed off in a few days and the rash soon faded. Examination of the heart and urine was negative. Two days after the child had been allowed to get up for the second time, two large vesicles appeared on the right foot and a severe attack of pemphigus followed. The disease alternately waxed and waned, some parts of the skin being affected more than once. Liquor potassii arsenitis was given in five minim doses three times daily and increased to seven minims. Locally, phenol and, later, calamine lotion were used, and the affected areas were covered with dry boric lint. The patient's general condition throughout the entire attack was good; the temperature remained normal. After the child returned home the eruption broke out again. The points of interest are that pem-

phigus occurred during convalescence from scarlet fever, that it was preceded by an unexplained edema while the fever was free from complications.

February, 1913.

Benzol in Chronic Lymphoid Leucemia, by H. D. and J. D. Rolleston.—The patient, a child aged six and a half years, presented a blood picture typical of lymphoid leucemia. Benzol treatment was given, the initial dose being six minims per diem which was increased to twelve minims per diem after two weeks and then to fourteen minims per diem after two and a half weeks more. The drug was then stopped entirely. The patient's condition improved and the total leucocyte count grew smaller. The spleen did not decrease in size; there was no decrease in the size of the glands; the patient did not gain in weight. A week after the benzol had been stopped, a slight purpuric rash appeared which was attributed to the drug. This soon disappeared and the patient was well for some time. Seven weeks after cessation of treatment, the boy was readmitted to the hospital with hard lymphatic glands which had become slightly larger. Benzol was given in the dose of nine minims per diem for two weeks and the patient again showed improvement. After the benzol had been stopped, the blood count showed an increase in the number of leucocytes, three and a half weeks later benzol was again given, the dose being twelve minims per diem. The same day the patient had fever with an offensive nasal discharge; the culture from the throat showed diphtheria bacilli. The child quickly passed into a septic state and died four days later. The blood count taken four days before death showed a leucopenia. The autopsy revealed normal submaxillary, cervical, tracheobronchial and mesenteric lymph glands; also normal lungs, heart, liver, spleen and kidneys.

Perforation of Arch of Aorta by Safety Pin in Esophagus, by E. G. L. Goffe.—There was nothing in the history of the case to indicate that the child had swallowed a pin. It vomited a little milk after every feeding, and just before it died brought up a quantity of blood. The pin was found post mortem. It had perforated the esophagus on its anterior surface about one and a half inch from the upper extremity. The arch was perforated about one half an inch below the origin of the subclavian artery; death was caused by hemorrhage from ulceration in the tissue between arch and esophagus.

Infection of Middle Ear with Vincent's Organism, by James Adam.—In the cases reported there was little disturbance of the general health. Fever was absent, there was no history of any throat infection; the throat cultures were negative. The cases showed the constant presence of Vincent's organisms in the discharge. The pneumococcus was associated in seventy-five per cent. of the cases. The course of the disease was chronic, the discharge was foul and profuse, the granulations were profuse and bled easily, there was erosion of the external parts of the ear, a slight tendency to the formation of a membrane and slight glandular enlargement. In the cases reported it limited itself to a local infection which yielded readily to appropriate treatment. The best results in treatment were obtained when solutions of ethyl violet and brilliant green were

used. The infection when present in the throat is most often confounded with diphtheria. It is probably always secondary to some other infection and seems to appear in cases that have suffered from neglect.

BOSTON MEDICAL AND SURGICAL JOURNAL.

March 11, 1915.

Ten Cases of Diverticulum of the Bladder, by Hugh Cabot.—The writer is of the opinion that these sacculations are of congenital origin, that they may and do exist for years without causing symptoms which, when they do appear, depend upon the advent of infection. Entire quiescence must not, however, be taken to mean that these conditions are harmless, since they occur most commonly in the neighborhood of the ureteral orifices, where they are apt to produce ureteral dilatation, hydronephrosis, and extensive destruction of the kidney. Regarding treatment he believes that when a diverticulum of the bladder is discovered the indications for its removal are clear, if the condition of the patient is such as to make recovery within the bounds of probability. The result is influenced, aside from technical difficulties, by the condition of the kidneys and the amount of pericystitis and peridiverticulitis which result from long standing infection.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

March 13, 1915.

Boric Acid in Diseases of the Skin, by D. W. Montgomery.—While boric acid has an extensive use, it is almost always employed as an adjuvant; writers on therapeutics and dermatology have given it far less notice than its real value demands. Its subsidiary position adds to its importance; by its correct application the efficacy of the main therapeutic agent is often increased. As a diseased skin is irritated, the advantage of employing an antiseptic which is at the same time bland and soothing, even though weak or only inhibitory, is obvious. The effect of boric acid in solution is beneficial when the skin is denuded of its horny epithelial covering and the capillary layer exposed, in catarrhal inflammations such as eczema or such superficial dermatitis as that caused by poison oak. In acne a thorough soaking of the face with a hot boric acid solution decidedly increases the efficacy of a resorcinol or sulphur application. For ordinary boils an admirable poultice is made by mixing boric acid with starch paste. Hordeolum, or sty, may be successfully treated by persistent soaking for half an hour twice a day with warm saturated boric acid solution and after each soaking rubbing in a salve of one per cent. red mercuric oxide in petrolatum. In impetigo contagiosa one of the chief indications is to remove the heavy crusts without injury to the inflamed skin, and this may often be best accomplished by the application of a boric acid starch poultice made in the following manner: Dissolve one slightly heaping tablespoonful of pulverized laundry starch in two tablespoonfuls of cold water, and to this add one coffee cupful of boiling water; stirring rapidly until the mixture is a thick paste. Then add a tablespoonful of boric acid, and stir well until thoroughly mixed. Fold the jelly between layers of thin muslin or cheesecloth, and apply as hot as

can be borne. When by means of such a poultice the crusts have been softened and loosened, a salve containing an appropriate antiseptic, such as ammoniated mercury, should be applied. Among affections in which boric acid constitutes a useful adjuvant are *perleche*, *paronychia*, and leg ulcer.

Significance of Tubercle Bacilli in the Urine, by Lawrason Brown.—This significance may or may not be grave. The bacilli may be discovered on routine examination of the urine, and, again, may be found in the urine of patients with symptoms referable to the urogenital tract. Undoubtedly tubercle bacilli in the urine come most frequently from the kidney, and vesical tuberculosis is mostly secondary to renal tuberculosis. In patients with pulmonary tuberculosis, renal tuberculosis is not rare. In regard to the collection of urine, the same care should be used as in the collection of sputum. No staining method absolutely differentiates tubercle bacilli from smegma bacilli, but cultural methods may prove of great assistance. Animal inoculation, with the production of tuberculosis, is an absolute test, but of value only when positive. Radiography may aid in the quick detection of caseous foci when the urine contains no tubercle bacilli. Such bacilli may be excreted through apparently normal kidneys. In genital tuberculosis the bacilli usually occur in the urine late in the disease, and consequently are of little value in the diagnosis. The final, and often the best, treatment for renal tuberculosis is nephrectomy followed by the use of tuberculin.

Familial Syphilitic Infection in General Paresis, by R. H. Haskell.—The number of completely sterile marriages in syphilitic families in which one member later develops paresis is abnormally high (32.5 per cent.), and this proportion is higher when it is the female mate who becomes parietic. The number of marriages in which repeated pregnancies result only in abortions is also abnormally high, and the number of living children in a family is abnormally small. A large number (in some investigations reaching as high as twenty-five per cent.) of these children are actively syphilitic; while an equally large number show signs of degenerative physical conformation and psychopathic tendencies, without a positive Wassermann reaction. Much of all this is preventable.

MEDICAL RECORD.

March 13, 1915.

Treatment of Pyorrhea alveolaris and Its Secondary Systemic Infections by Deep Muscular Injections of Mercury, by B. L. Wright and P. G. White.—Among secondary infections are malignant endocarditis, chronic arthritis, myositis, Hodgkin's disease, various stomach disorders, neuritis and other diseases of the nervous system. The cure of pyorrhea is of vital importance, to prevent its local ravages and systemic invasion. No one microorganism can be regarded as the specific cause; the streptococcus-pneumococcus group apparently comprises the important pathogenic bacteria. Since mercury is the chemical affinity of vegetable parasites when properly injected into the infected host, it will cure the specific disease. The results obtained have been uniformly and brilliantly successful; so far, twenty-eight cases have been treated;

all have been completely cured in remarkably short periods of time. Of these, nine, or 32.1 per cent., had systemic infections probably secondary to the pyorrhea, six being chronic arthritis, one chronic gastritis, one chronic bilateral facial neuralgia, and one chronic laryngitis; two other patients had gonorrheal arthritis. The local treatment embraces the following: Careful expression of pus from the pockets, thorough removal of all calcareous deposits and tartar, extraction of hopeless teeth and roots, polishing of tooth structure, application to the margin of the gums, every other day, of equal parts of chloroform and the tinctures of iodine and aconite. Mercuric succinimide is the preparation employed for the muscular injections, and these should be commenced with the local treatment and repeated every seventh day. The initial dose for a man is half a grain; if the patient is improving, each succeeding dose may be slightly reduced. In women the dose should be from one fifth to two fifths less. The cooperation of the physician and dentist is essential.

Neglected Lateral Curvature, by M. Strunsky.—There is a regulation made by the Board of Education that no child's spine is to be exposed. The school physician therefore, in examining for scoliosis, can feel the child's back only through the clothing, and at best such an examination can detect only gross changes in the trunk. Hence there is no chance for an early diagnosis, especially since it has been demonstrated that in a large number of instances the trouble begins in the sacrum and the first lumbar vertebra, a region in which the clothes are the thickest. It is no wonder, then, that in practically all of thousands of cases examined by the orthopedist the trouble was not detected in its incipency, as should have been done in a civilized society. Even when the spine is exposed, unless one has a sound orthopedic judgment, cases will be passed over as normal when in reality serious deformity exists. This happens when the spinous processes are bent in the direction opposite to the rotation of the vertebrae. In such instances, if one judges from the direction of the former, the spine is pronounced straight when as a fact the rotation of the vertebrae, which is really the serious element, is far advanced.

Clinical Treatments for Systemic Goitre (Graves's Disease), by M. S. Macy.—A series of forty-four cases is reported. It is suggested, regarding the etiology of systemic goitre, that it is a profound disturbance of the physiology of puberty, caused by exhaustion of the nervous system, either rapidly (strong emotions, fear and grief) or slowly through long sustained effort to gratify ambition, intellectual or physical. The cases of hyperthyroidism recorded in children under the extreme low variation of normal puberty (seven years), may be due to some similar condition which must account for instances of precocious menstruation and other infantile abnormalities of sexual maturity. That so many systemic goitre cases are not recognized, or perhaps do not appear, until the third, fourth, or even fifth decade of life does not, it is believed, disprove this theory; since the affection is frequently called neurasthenia, hysteria, etc., prior to the appearance of the exophthalmos and the marked thy-

roid enlargement. If the theory will bear dissection and proof, it will serve to explain in large measure why so many widely different types of treatment meet with both successes and failures.

AMERICAN JOURNAL OF OPHTHALMOLOGY.

February, 1915.

Complete Disappearance of an Eyeball Following a Birth Injury, by W. F. Hardy.—A boy aged eight years was to have an artificial eye fitted. His mother stated that the eye had never been removed, but that it had been injured at birth by the application of forceps, and according to her understanding the eyeball had been ruptured. She said that its cornea and iris had the same appearance and color as those of the other eye, but that the eyeball shrank gradually and rather rapidly until it completely disappeared. Palpation as deep as possible under cocaine yielded no evidence of an eyeball, and no stump or remnant of a globe could be seen.

Chemotherapy of Pneumococcus Infection, by J. Morgenroth.—Two years have passed since the recommendation of optochin, or ethylhydrocuprein, as a remedy for pneumococcal ulcers of the cornea, and Morgenroth has collated the literature favorable to its use, with a study of its action on this form of ulcer in rabbit's eyes. In some places its systematic use seems to have supplanted cauterization. Kümmell's recommendation appears to express the usual mode of procedure, to touch the ulcer for half a minute with a two per cent. solution, and then instill a one per cent. solution every hour.

ARCHIVES OF DIAGNOSIS.

January 1915.

Diagnosis of Abnormalities of Myocardial Function, by T. Stuart Hart.—The etiology, pathology, and clinical meaning of the extrasystole, are discussed. A coupled beat following a pause is especially suggestive. Inspection of the jugular pulse is often helpful in the diagnosis of extrasystole, the two venous waves ordinarily seen in the fundamental regular rhythm being often replaced at the time of the premature contraction by a single unusually large venous wave. Only where extrasystoles are very frequent or arise from more than one focus in the heart, is the prognosis doubtful, such conditions pointing to advancing myocardial changes.

Diagnostic Value of Hyperesthesia of the Solar Plexus, by Morris Schott.—Examination of the solar plexus reflexes is to be included in every diagnostic investigation. In the absence of an esthesiometer, it can be carried out by simple pressure with the finger over a point about one and a half fingerbreadth to the right of the median line and directly over the trunk of the celiac axis. Schott uses a common baby scale connected with a rod bearing a pressure button upon one extremity; he thus reads off the amount of pressure applied from the register on the scale. He finds that an hyperesthetic point over the solar plexus during tardy gastric pains—two to four hours after eating—suggests a pathological condition of the gastric walls, viz., congestion of the mucosa, hyperacidity, or ulcer of the stomach. In neuropathic conditions the hyperesthesia shifts from time to time and bears no relation

to the time of food ingestion. Absence of hyperesthesia of the solar plexus during a paroxysm of gastric pains suggests tabes dorsalis.

ARCHIVES OF INTERNAL MEDICINE.

February, 1915.

Action of Atophan and Novatophan in Gout and Iritis, by C. A. Smith and P. B. Hawk.—Cases in which these drugs were given and the mechanism of their action are reported. Although probably the primary action of atophan is stimulation of the kidneys to increased uric acid elimination, an indirect action in mobilizing the uric acid in the body tissues is also to be thought of. This mobilizing is not very extensive, for the uric acid content in the blood is lower at the end of the atophan treatment than previously. In cases of iritis studied there was not an appreciable increase of uric acid excretion. This suggested that atophan has an important additional action entirely unrelated to uric acid.

Radioactivity of the Mineral Waters in Hot Springs, Va., by J. C. Hemmeter and E. Zueblin.—The results in a study of the radioactivity of various springs in Hot Springs, Va., compared favorably with the reports of Boltwood from Hot Springs, Ark., those of Schlundt and Moore from Yellowstone Park, and those of various observers from a number of European springs. Swimming pool treatment in the bath house at Hot Springs is commended, and stress laid on the fact that, to exert their beneficial effects, the waters must be consumed directly at the spring. Observations indicated that the air surrounding mineral springs contains radium emanation; this influence, continued during long periods, must contribute to the final therapeutic result in such conditions as gout, chronic and subacute rheumatism, metabolic diseases, and certain skin affections.

Nitrogenous Diets in Chronic Nephritis, by C. Frothingham, Jr., and W. G. Smillie.—The effects of a high, a standard, and a low protein diet were studied in a series of cases. Only in occasional instances did the patient not feel so well under the high protein as under the other diets. A high nitrogenous diet is, however, presumed to be unfavorable to the best interests of the patient. It was found that a diet low in nitrogen will often keep down to normal the nonprotein nitrogen of the blood in chronic nephritis.

Therapeutic Action of Iodine, by J. W. Jobling and W. Petersen.—Experimental and clinical investigations of the action of iodine on the antitrypsin of the blood and tissues are reported. The authors believe antitrypsin to be the most important factor in preventing the resolution of necrotic tissues in infarcts and the caseous areas in syphilis and tuberculosis. Having demonstrated that the antitryptic action of the blood and of tuberculous caseous matter is due to the presence of unsaturated fatty acids, the possibility suggested itself that the action of iodine in the body might be due to a combination of it with the fatty acids, thus annulling their activity as ferment inhibiting agents. In experiments on guinea-pigs as well as man, potassium iodide was found actually to cause a great decrease in antitrypsin in the blood. In further experiments on tuberculous caseous material, definite evidence of the

well known resolving action of the iodides on tuberculous tissue was obtained.

LONG ISLAND MEDICAL JOURNAL.

February, 1915.

Top Milk Adaptations in Infant Feeding, by LeGrand Kerr.—The top sixteen ounces of average milk contain seven per cent. of fat, a little over three per cent. of sugar, and the same of total protein; the top ten ounces contain ten per cent. of fat. With these facts it should be possible to work intelligently with the average feeding case. If water is used as a diluent, five per cent. of sugar should be added to it, and if cereal diluent is used, three per cent. The percentage of sugar is in terms of the amount of the diluent, not of the finished mixture. Whey may be used; it is an excellent diluent, but its proper preparation requires considerable care and skill and unless this can be assured it would be better not to try it. Lime water is not necessary as a diluent in spite of the general belief that it is. It does seem, however, to reduce the firmness of the clot and thus aid in digestion to a certain extent. It is impossible to modify cow's milk to make it approximate human milk, for there is always a difference in the chemical composition of the constituents. Recognizing this fundamental fact the most satisfactory way to feed an infant artificially is to adapt by trial some dilution of cow's milk to the digestive powers of the case in hand. Such symptoms as vomiting, regurgitation, and colic indicate the need for further adaptation of the feeding, and are usually indicative of overfeeding. Diarrhea, or vomiting of rancid smelling material suggests too high a fat content and constipation or retarded gain in weight too low a fat content. Curds in the stools with flatulence commonly follow too much protein. Failure to gain in weight and strength, but with normal digestion, indicates too weak a formula in both fat and protein. With regard to the question of weight, it should be emphasized that percentage increases are of more importance than absolute changes, and it should also be borne in mind that there are normally quite large daily variations in weight due to different states of filling of the bladder and gastrointestinal canal. The single factor of weight should not be allowed to misguide one, and the question of the general development of the child should be considered even more important.

Albumin Milk, by S. Feldstein.—The directions for the preparation of this form of milk are given and it is emphasized that the securing of a proper finished product is a matter of considerable difficulty. But such a preparation may be obtained properly prepared from one of the milk laboratories in any of the larger cities. Its fields of usefulness are in the severer acute cases of functional diarrhea, in which it is next to breast milk in value, and it is also particularly useful in highly toxic cases after a period of starvation has been enforced. The initial dose of this preparation seldom exceeds one ounce ten times daily. This is to be increased by two or three ounces a day until an amount equal to about one fifth of the body weight is being given. In no case, however, should more than a quart a day be given. As originally suggested this form of feeding often led to carbohydrate inanition, but at

present it is always used with the admixture of three per cent. of the easily digestible dextrimaltose so that this danger is overcome. The persistence of the toxic symptoms or of diarrhea is not an indication for the early cessation of this treatment, but, on the contrary, it should be continued until the full amounts are being taken before the decision to discontinue it is entertained.

SOUTHERN MEDICAL JOURNAL

February, 1915.

Early Diagnosis of Pulmonary Tuberculosis, by C. H. Cocke.—A patient's chances of recovery are in direct proportion to diagnosis and treatment. Where possible, we must save the child from his parent, for here is where the seeds are sown in the large majority of instances. This can only be done successfully by early discovery. Late diagnosis has but two rational explanations: First, delay on the patient's part in seeking the doctor, secondly, delay on the doctor's part in making the diagnosis or of announcing it when made. As to early diagnosis, early and eternal suspicion, a complete history, careful physical examination, unwillingness to be satisfied with unmeaning terms, gripe, indigestion, neurasthenia, etc., which serve as cloaks for our ignorance or carelessness, a willingness to convict upon the evidence of the sum total of numerous details, no one of which is diagnostic, but the aggregate of which is convincing evidence to the trained observer, by reason of numerical preponderance and ever increasing skill in physical examination—these are the paths which lead to the goal of early recognition of the disease. Nor should there be hesitancy on the family doctor's part to seek expert advice in tuberculosis, any more than to call the surgeon in a case of appendicitis.

Emetine Hydrochloride in the Treatment of Entamebiasis and Other Affections, by R. Lyons.—The recent tendency to give large doses is inadvisable; in the majority of cases of amebic dysentery an average of one grain daily meets every indication. This disease should preferably be treated with courses of emetine; limitation of the first course to two weeks is based upon experience which apparently demonstrates that prolonged subcutaneous use of even moderate doses may produce or keep up diarrhea or give rise to a peripheral neuritis. Large doses over a short period may cause the same results. The discovery of the beneficial effect of emetine in pyorrhœa alveolaris is one of far reaching importance, and it would seem that the outlook for cure in this very common and obstinate condition is most favorable. With two or three exceptions, all the reports thus far published are pronounced in favor of the antihemorrhagic properties of emetine, and it has been employed in bleeding from the nose, uterus, and bowels. It is most likely that the drug will find its chief usefulness in protozoan diseases. It has been found of value in a few cases of sprue, *Balantidium coli*, *Lambia*, and *Schistosomum*.

Etiology and Treatment of Pellagra, by B. W. Page.—Page describes a bacillus developing by spore formation which, in addition to the colon group of bacteria commonly found, he has observed in the feces of pellagrins, and which he believes

must be the cause of the disease. This bacillus, in culture, was tested by many drugs, and a one per cent. solution of ichthylol seemed to have a most decided effect. He has recently treated twenty-two cases of pellagra with ichthylol, and finds that one or two five grain pills three or four times a day for three weeks seems to cure in the average case. The bacilli, as a rule, disappear by the tenth day, but in one fourth of the cases in which the treatment was stopped at this time, the bacilli and symptoms returned three or four weeks later. From his short experience he concludes, however, that an eight day treatment with ichthylol is of far greater value than a four months' treatment with arsenic preparations.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN GENITOURINARY SURGERY.

Regular Meeting, December 10, 1914.

Dr. J. F. MCCARTHY in the Chair.

Sepsis Following Urethral Instrumentation.—

Dr. A. HYMAN presented the case of a man fifty-three years of age, who was admitted to the Mt. Sinai Hospital February 9, 1914, in a condition of sepsis brought on apparently by instrumentation in a dispensary clinic. Immediately after the passage of a cystoscope, three weeks before admission, the epididymis began to swell, and fever and chills developed. On admission the temperature was 103° F., leucocyte count was 12,800 with eighty-two per cent. polynuclears, and within a few days evidences of abscess formation (metastatic abscess) extending along the entire length of the femur were noted. This was incised and drained. In April, a metastatic abscess developed over the quadriceps bursa. *Staphylococcus pyogenes aureus* was obtained in culture. In June, it became necessary to amputate the thigh, pathological fracture having occurred. In July, another metastatic abscess developed over the left clavicle, and at operation the bone was found involved, *staphylococcus* again being obtained in culture.

Primary Tuberculosis of the Pelvis of the Kidney.—Dr. LEO BUEGER presented the results of studies on fifty tuberculous kidneys received in Mt. Sinai Hospital from 1907 to 1914, and pointed out that primary tuberculosis of the pelvis of the kidney might exist. Although the variety of tuberculosis with primary involvement of the papillæ was frequently encountered, and although the advanced type of lesion with cheesy degeneration and cavity formation was by far the most common, in two specimens the lesions were little advanced from the anatomical standpoint and suggested that the calices and pelvis were the first to be attacked by the infection. In one of the specimens, the cut surface showed practically no signs of tuberculous involvement in the renal parenchyma, but near one of the papillæ of the upper pole, and involving one of the recesses of the calyx, as well as the mucous membrane of the calyx over an area about one cm. in length, and six mm. in width, there was considerable

thickening of the mucous membrane of the calyx together with several nodular protrusions. In addition, there was a small ulcer. These were the only evidences of tuberculous change. Histological examination of the pelvic tissue showed tuberculosis. In short, this case presented early lesions of tuberculous involvement in the pelvis of a kidney in which there were no signs of involvement of the parenchyma. In a second case, there were changes in the tip of one papilla, but these were not as far advanced nor as old as those in the adjoining calyx. In one of the recesses adjoining the papilla and in the calyx, there were two lenticular areas of thickening involving one cm. by five mm., where an advanced and old tuberculous process with coagulation necrosis was found. In this case it seemed undeniable that the necrotic lesions in the calyx and pelvis were at least as advanced, if not older, than those of the tip of the papilla. Buerger's observations, although few in number, would strongly favor the assumption that in chronic renal tuberculosis the bacilli gained access to the tissues by a process of filtration from the blood into the urinary tubules. From these they reached the surface of the papillae or calyx recess, where they were amassed in sufficient numbers to bring about a tuberculous lesion. It seemed more than likely that the angle between papilla and calyx might afford a favorable nidus for the accumulation of bacteria, the anatomical disposition of the parts making for stagnation and poor drainage.

Congenital Hydroureter and Hydronephrosis.—

Doctor BUERGER also described a rare and interesting case of congenital hydroureter and hydronephrosis in a boy six years of age, who was admitted to Mt. Sinai Hospital, July 21, 1911, with a diagnosis of pyelitis. In October, 1912, the patient was referred by Dr. Henry Heiman for cystoscopic examination, and a most remarkable patulous condition of both ureteral orifices was found. From the presence of these dilated ureteral orifices, the presumptive diagnosis of hydroureter with probable dilatation of the pelvis of both kidneys was made. On October 18th, seventy-five c. c. of a twenty per cent. solution of argyrol was put into the bladder and the fluid allowed to run back into the kidneys, and excellent x ray plates were obtained, showing the enormous distention of the ureters and also the enlargement of the kidneys. In addition, there appeared to be associated evidences of a paretic condition of the bladder, residual urine being constantly present. Two years after the onset of the symptoms an intercurrent infection (diphtheria) was fatal. Autopsy confirmed the clinical diagnosis of bilateral hydronephrosis and pyonephrosis, hydroureter, and marked vesical enlargement. As to the question of the causation of the urinary retention, on the one hand, and of the bilateral hydroureter and hydronephrosis on the other, Doctor Buerger was of the opinion that, inasmuch as no lesions could be found at the neck of the bladder, in the prostate, in the region of the verumontanum, or in the urethra that could in any way be regarded as offering an obstacle to the outflow of the urine, and inasmuch as there was no evidence of any nerve condition that could have led to any paretic condition of the bladder, nor any history of spinal disease, anterior polio-

myelitis, spina bifida, it seemed most likely that they must consider the condition as an exaggeration of a congenital anomaly. The large size of the ureteral orifices, the enormous dimensions of the expanded ureters, in spite of the absence of any ureteral obstruction, spoke in favor of a congenital enlargement. It seemed most probable, given a congenital maldevelopment of the musculature of the pelvis of the kidneys, ureters, and ureteral orifices, coupled with a similar condition of the bladder wall or an acquired vesical paresis, that the efforts of micturition must needs become weaker and weaker as time went on; for with insufficient ureteral meatuses the urine ascended with ease into the ureters, where it became pocketed in puddles, as it were, in the dilated, convoluted, and tortuous channel. And thus a vicious circle was established until the dilatation of ureters and bladder had attained such dimension that micturition became impossible. Secondary infection and destruction of the renal parenchyma followed, functional insufficiency being the outcome.

Dr. JAMES PEDERSON made two suggestions regarding the etiology of the condition just described. Some years ago, he had a boy of eight or ten years of age, with a history of difficult urination. Examination disclosed an enormously distended bladder. Cross questioning revealed that the boy had been so much interested in his play as to fail to answer calls to urinate. In consequence he had gradually developed atony. The father was instructed to compel the boy to urinate every two hours. By that simple procedure a cure had resulted. Though the history might not be convincing, it offered one possible explanation of the first cause in such a case as Doctor Buerger had reported. Another possible explanation was that Doctor Buerger's patient might have begun with a colon bacillus infection from which a pyelitis developed, with resulting reflex spasmodic retention and ever increasing infection and back pressure in the ureters and renal pelvis.

Doctor HYMAN said that about two months ago a child of seven or eight years came to the hospital with a large perinephritic abscess on the left side. This was opened, and a large opening to the kidney could be distinctly felt. The patient had a temperature of 103° F. This subsided after operation, and was normal within a few weeks. In going over the history with the family, it was learned that for some time the child had had difficulty in urination, and the only cause that could be discovered was a very small meatus. Three or four weeks later it was found necessary to remove the child's left kidney. An x ray picture was taken after operation with the bladder filled with argyrol. The argyrol passed up into the left ureter, which was found considerably dilated, thus demonstrating a patulous ureteral orifice. The picture in this case corresponded in many points with the case described by Doctor Buerger.

The Present Status of the Operative Treatment of the Seminal Vesicles.—This paper, by Dr. J. BENTLEY SQUIER, appeared in the JOURNAL for February 20, 1915.

Doctor PEDERSEN said that beyond question the operation yielded good results in selected cases; but there had been a hesitancy among surgeons about taking it up, because it presented positive technical difficulties and not every surgeon had taken the

pains to acquaint himself with them. The whole subject of systemic infection had attracted so much attention in the past few years from surgeons and internists, that this operation (drainage of the seminal vesicles), attacking as it did a now well recognized focus of infection, must win more attention.

Doctor BUEGER believed that some of the affections of the joints were due to the absorption of toxins, and asked if Doctor Squier had come across any definite evidence that gonococci had been changed and taken on a modified form in the vesicles. The results reported from this method of treatment were very remarkable. He was impressed by Doctor Squier's statement that more of these cases of prostatitis and vesiculitis should be attacked early and opened. He had seen many cases which would have saved much subsequent trouble had they been drained early.

Doctor CILLEY was very much pleased to hear another man come out and report such remarkable results from this latter treatment. One of the cases which had been showed on the screen had interested him very much. The patient referred to had been in Denver and various other resorts for tuberculosis, and finally came to the Cornell dispensary, asking for a plaster jacket for tuberculosis of his cervical spine. Doctor Cilley did not believe the man had tuberculosis, and had made a rectal examination and found a marked involvement of the seminal vesicles. A vaccine was made; and the vesicles were stripped without avail. The vesicles were then drained—this relieved the pain. There was no use in insisting that a patient who has had joint involvement for as long a time as had this man would regain immediate use of them.

Doctor HEYD said that it was probable that what they ordinarily called a chronic gonorrheal rheumatism was not, strictly speaking, due to Neisserian infection. It was true that initiatory bacteria were probably gonococci, but it was only a question of time before the joint manifestations were due to the secondary invasion of a variety of pathogenic microorganisms. Rosenow was able to obtain in all but three of thirty-eight cases of so called arthritis deformans, a variety of pyogenic bacteria, and the bacteriological history of gonorrheal rheumatism demonstrated the paucity of positive growth of gonococcus. Buerger, in 1907, drew attention to the phenomenon of mutation of form and biological properties of the pneumococcus. Rosenow, about the same time, made his epoch making contribution on the mutation of bacteria. They would recall that Rosenow took *Streptococcus viridans* from the mouth and upon changing the character of the cultural medium he obtained variations or mutations in the specificity of the bacteria. From *Streptococcus viridans* he obtained *Diplococcus rheumaticus* with a distinct predilection for the joints and the endocardium when injected into animals. From *Diplococcus rheumaticus* he obtained *Streptococcus hamolyticus*, which when injected into animals localized itself entirely in the synovial membrane and glands of the joints. Again, by further changes in the culture medium and growing *Streptococcus viridans* symbiotically with *Bacillus subtilis*, he could obtain a pneumococcus, and, by carrying the pneumococcus through various modifications of culture, he ob-

tained *Streptococcus mucosus incapsulatus*. They might apply this idea of the mutation of species to the infection of the vesicles. It was not improbable that the Neisserian was the original infection, but that later gave way to a mixed infection of pyogenic bacteria.

Doctor Buerger's suggestion that the affected joints were simply the manifestation of toxic absorption, was extremely interesting. It seemed, however, more probable that the joint manifestations were due to the direct action of bacteria in or about the joint. Adami had shown that what was known as chronic muscular rheumatism was due to the embolic implantation of bacteria of low virulence in the tendinous portions of the muscles, producing milary abscesses which finally resolved, leaving contracted scar tissue about the joint. A priori, they might assume that the changes which occurred in joints were due to the action of bacteria acting directly upon joint or periarticular tissues, and that, as a rule, the offending organism was not the gonococcus. The bony changes and the ankylosis incident to an infection of a joint would not be cured by a vesiculotomy. All they could hope to obtain by draining the vesicle was to prevent the further discharge of infectious emboli, thereby bringing about an amelioration or cessation of the clinical symptoms.

Letters to the Editors.

SULPHUR IN "RHEUMATISM."

WILMINGTON, N. C., March 15, 1915.

To the Editors:

In your issue for March 13th, you refer editorially to the use of sulphur in "rheumatism." I have never used it in this connection, but have found it a most valuable drug in certain intestinal diseases. At the suggestion of Dr. C. W. Stiles, I have been using sulphur in dysentery (not amebic) and find that it acts well. Many cases of chronic dysentery due to *Trichomonas*, which are usually diagnosed as "bowel consumption," will respond nicely to a course of sulphur.

I use it in capsules combined with an equal portion of sugar of milk, giving about one dram of the mixture every twenty-four hours.

CHARLES P. BOLLES, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Urinary Analysis and Diagnosis. By Microscopical and Chemical Examination. By LOUIS HEITZMANN, M. D., New York. Third Revised and Enlarged Edition. With 131 Illustrations, Mostly Original. New York: William Wood & Co., 1915. Pp. xix-345. (Price, \$3.)

This work marks a decided departure from the usual volume on urinary analysis in the great importance assigned to the microscopical aspects of the examination of the urine. The subject of the chemical examination has not been slighted in any respect, but it is presented in rather less detail than is usually the case in works on urinary analysis. All of this aspect of urinalysis is covered in a space of some seventy pages, and it has been impossible for the author to go into much detail with regard to many of the tests. He has rather chosen those of established value and confined himself even among these to such as are not too complicated to be carried out successfully in a small

private laboratory. The discussion of microscopical examination covers a space of about 240 pages and is profusely illustrated with black and white drawings of the findings as actually seen in the types of affection under consideration. This section is preceded by some introductory remarks as to the value of the presence of casts, crystals, and epithelial cells of different types, etc., in the formation of a diagnosis. Much stress is laid upon the subject of the proper and accurate localization of the source of origin of the various forms of epithelial cells which may be encountered in the urine. The author contends that the cells from the several different portions of the kidneys, the renal pelvis, the ureter, prostate and seminal vesicles, the bladder, vagina, and uterus can all be recognized and accurately differentiated in most cases by one who is willing to devote time to careful microscopical examination of the urine. The proper identification of these cells provides the necessary evidence for the precise determination both of the localization of the lesion and of its degree of intensity. One can also determine whether it is acute or chronic with considerable certainty. In addition to the value, from a diagnostic and prognostic point of view, of the recognition of the several types of epithelial cells, the author lays stress on the prevalence and appearance of pus cells in the urinary deposit. Attention is called to the fact that the common error in the microscopical examination of the urinary sediment lies in the use of lenses of too low magnification; at least 400 to 500 diameters should be used for all of this work. The work closes with a brief presentation of the newer methods of testing the renal function and is altogether a complete volume on its subject. One cannot fail to be impressed with the author's confidence in his ability to make the most highly refined diagnoses with the help of the microscopical examination of the urinary sediment. But in view of the very generally accepted opinion as to the difficulty, if not impossibility, of making certain identification of the several different forms of lining cells of the urinary tract, one feels a certain hesitation in accepting the contentions of the author on these matters without reserve. This skepticism which the book arouses should tend rather to recommend it than speak against its use, for it piques curiosity to such an extent that one feels that one must see for oneself whether these statements can be true. In all, the volume has much to recommend it.

Textbook of Massage and Remedial Gymnastics. By L. L. DESPARD, Member and Examiner, Incorporated Society of Trained Masseuses. Second Edition. London: Henry Frowde (Oxford University Press); Hodder & Stoughton, 1914. Pp. xix-413. (Price, \$4.50.)

Miss Despard's book, which has already passed through one edition, is strongly to be recommended for the admirable illustrations, 200 in number, from which alone masseur or clinician can learn much of practical importance. The illustrations are selected, with great judgment, to give a comprehensive idea of gross anatomy. They begin with the skeleton and cover pretty much all the necessary points. Next follow the articulations or joints, then a very full group of the muscular system; then an unusually well-selected conception of the nervous system for a book of this character.

Next the vascular system is portrayed, then follows the digestive system and in order come some excellent diagrams of classifications and descriptions of massage movements, then the Swedish remedial gymnastics, descriptions of massage procedures; then an excellent contribution on deformities; functional disorders of the nervous system, and a number of the more commonly used bandages, finally the electrical movements used in conjunction with massage.

On the diagrams of the bones, the attachments of muscles are displayed in colors, and so of the pictures showing the muscles, making them more graphic and obvious. In the more detailed pictures we have the bloodvessels shown, the arteries and veins in appropriate colors, and several excellent large diagrams of the trunk with the contained viscera, diagrammatically sketched out.

Altogether this book will prove to be one of the best reference manuals for anyone learning massage, or who is sufficiently exact in methods to wish to keep constantly in mind the topography and anatomical relationships. It

is particularly adapted to the needs of English-speaking operators.

Edema and Nephritis. A Critical, Experimental, and Clinical Study of the Physiology and Pathology of Water Absorption in the Living Organism. By MARTIN H. FISCHER, Doctor of Medicine, Eichberg Professor of Physiology in the University of Cincinnati. Second and Enlarged Edition. New York: John Wiley & Sons, Inc., 1915. Pp. x-605. (Price, \$5.)

This presentation by Fischer of his theory concerning edema and nephritis is very interesting. In discussing various other theories, such as the osmotic, the lipid membrane, and that of the changes in the pressure of the circulating fluids of the body, the author shows clearly their weak points. On the other hand, he presents his colloid chemistry theory in a way that is most convincing. Its great advantage lies in the manner in which it explains the phenomena as substantiated by actual experiment. In it the absorption of water is controlled by the laws which govern the hydration and dehydration of lyophilic colloids. Any condition increasing the hydration capacity of the tissue colloids constitutes a cause for edema. Consequently the accumulation of acids within the tissues, brought about either through their abnormal production or through the inadequate removal of such as some consider normally produced in the tissues, is chiefly responsible for this increase in the hydration capacity of the colloids.

The same theory holds good for nephritis. The changes that characterize nephritis are colloid chemical in nature and due to a common cause—the abnormal production or accumulation of acid and of substances which in their action upon colloids behave like acid in the cells of the kidney. The great mistake that is made is in considering as consequences of kidney disease many of the accompanying signs and symptoms. This volume can be highly recommended and should be read by the general practitioner.

Diseases of the Bronchi, Lungs, and Pleura. By FREDERICK T. LORD, M.D., Visiting Physician, Massachusetts General Hospital; Visiting Physician, Channing Home (For Consumptives); Instructor in Clinical Medicine, Harvard Medical School. Illustrated with 93 Engravings and 3 Colored Plates. Philadelphia and New York: Lea & Febiger, 1915. Pp. x-605.

Medicine is becoming so broad in its scope, and each single phase of it is becoming so extensive, that there is scarcely even an isolated branch upon which at least one book has not been written. Some of these volumes are meritorious, and none probably more so than the one in hand. The merits of the present work lie in three distinct classes. The first is the great importance of the subject treated; the second the comprehensiveness of its treatment; and the third that the entire subject is brought up to the very minute in point of our knowledge. The work is divided into three sections, dealing with the three divisions of the respiratory tract—the bronchi, the lungs, and the pleura. Not alone are the medical diseases of each division given exhaustive treatment, but the surgical conditions are accorded their due proportion of the available space. The chapter on bronchitis is especially interesting and valuable, for this is one of the commonest conditions encountered in the daily practice of medicine. It is a pleasure to see the firm stand taken by the author on the contagious nature of the majority of the bronchial infections, and his suggestions that the victims of bronchitis be urged to take the same precautions against transmitting the disease as are enforced with tuberculous patients, should be taken to heart by the family physician in whose hands lies the education of the layman in preventive medicine. In speaking of hemoptysis from the side of its etiology, Lord is able to classify no fewer than fifteen different possible causes, and by no means leans to the idea, so often expressed, that hemoptysis nearly always means tuberculosis. While admitting that tuberculosis is probably the most frequent cause, he contends that the proportion of cases in any series which are due to this disease, differs very widely with the nature of the material from which the statistics are drawn. In the chapter on pneumothorax, he aptly observes that it is not easy to understand how if the immobilization of one lung is valuable in checking the advance of a tuberculous process, the compensatory overwork of the other is good for it, particularly in view of the fact

that tuberculosis is rarely confined to one lung. Altogether, while giving due prominence to the reported merits of artificial pneumothorax, Lord is not quite convinced that its value is as great as is alleged. In the preparation of this treatise the author has faithfully endeavored to present both sides of any disputed question, but in the expression of his own opinions he shows a decided tendency to take a conservative rather than a radical stand. As in most of the more recent treatises on medical subjects, the practice has been followed in this volume of providing the reader with a complete bibliography of the subject under discussion—a practice which materially enhances the value of almost any work. The publishers have done the author justice in presenting his material in a very attractively made volume, well printed and well illustrated.

Interclinical Notes.

It seems to us that Onera A. Merritt Hawkes, who inquires, *Are We Inheriting Beautiful Feet?* in the April *Strand*, is reasoning on entirely false premises. He speaks of two types of feet, the even toed, and the arched in which the second toe is noticeably the longest, and assigns these to different races. We believe the fact to be that all children are born with the arched foot and the long second toe, and that it is simply the modern shoe which crowds back the long toe and flattens the arch. In support of this contention we cite the barefooted races, the Filipino for example. Modern sculptors, instead of rectifying the bad feet of their models, copy them, bunions and all, as may be seen in some of the *art nouveau* electroliers. Mr. Hawkes's examples given in his paper from Bouguereau, Madox Brown, Burne-Jones, and Brahmstaedt, studied in view of our comments, will also sustain our contention.

* * *

Too little attention is given to our modern footgear and the troubles that follow upon its wear. The narrow toe and high heel, the rigid sole and cramped instep are the real forerunners of many "female" disorders by reason of the posture they impose upon the body; while the fact that walking is uncomfortable prevents proper outdoor exercise. The sanatorium should insist upon sandals or orthopedic shoes without heels for every patient, irrespective of diagnosis. Close upon the fashionable shoe in its journey to the sanatorium dustheap might follow the modern corset.

* * *

Some remarks in the *Outlook* for March 17th on the benefits to be derived from the observance of Lent, lead us to advise our colleagues that it is in their power, during this season, to give away a little medicine here, to conduct a confinement free of charge there, to forego an account elsewhere, to visit clinics and outdoor departments without fees, to hand out food in addition to medical advice to the very poor, etc. By doing these things, they will scarcely be able to distinguish Lent from any other season of the year.

* * *

The nurse-detective in *Shadows and Flames* discovers the hero's secret supply of morphine in his unusually large cigarettes. The famous princess-authoress might have done better than that; by the way, she has advanced from the already advanced position of the popular magazines on sex; she has reached "sexlessness and its horrors." The conversation on this subject between the victim and his doctor is really very funny to the male reader of mature years; it is probably quite serious to women.

* * *

The Curative Action of Radium, by Dr. Sigm. Saubermann, of Vienna and Berlin, a book of fifty pages, is published in an admirable translation by Radium Limited, U. S. A., 25 West Forty-fifth Street, New York. Doctor Saubermann is recognized to be one of Europe's greatest authorities on radium emanation therapy, and in this booklet he voices the results of his research work during a period of over eleven years. It will prove of great interest to physicians who desire to test radium emanation in treating the diseases in which it is indicated. The thirty-five illustrations are in all probability the first of their kind ever shown in this country, and demonstrate clearly the effects of the rays and emanation of radium. A copy

of the booklet will be sent free by the publishers to our readers who mention the *NEW YORK MEDICAL JOURNAL*.

* * *

There seem to be as many views as to the etiology of the war as there are individuals. Until we arrive at a diagnosis, we suppose it is hopeless to expect a remedy; empiric treatment will not avail. R. M. Johnston, in *Arms and the Race*, tries his hand at diagnosis in the *March Century*, and Lindley M. Garrison, our secretary of war, writes of National Defense. Henry Reuterdaahl has a beautiful painting, *Our Sea Dogs*, as a frontispiece; but many other aspects of life are treated pictorially and fictionally in this handsome magazine.

* * *

The fear of high places is generally recognized to be pathological; like other fears of the kind, it can be overcome by will power, aided by suggestion. In the *Wide World Magazine* for March, there is an interesting true story of how one Crapsey, a pipe fitter, forced himself to work at the top of the fire control mast of the *Penobscot* in a United States navy yard, and suddenly found that he was master of himself. The "cure" took place when Crapsey had to rescue one of his mates and has since proved to be permanent.

* * *

We have received an advertisement of a proprietary remedy which recommended for both dysmenorrhea and prostatitis. We have seen many a so called shotgun prescription, but never one which could be fired like this one, at the whole family.

* * *

There is a most dumbfounding picture in the *March Strand* of a celebrated English advertising agent, the late Thomas J. Barratt. It is hard to reconcile those silky whiskers with successful work as copy man, outside man, ballyhoo, or other member of the agency personnel. Mr. Barratt, however, made a certain soap famous. He had his professional nerve with him once when he was serving on a jury; he jumped from his seat to inform counsel that copperas had nothing to do with copper, which piece of information surprised even the English judge. We understand that it is only quite recently that chemistry is recognized in the British public schools as anything but a succession of "horrid stinks."

* * *

Among the pictures of fur bearing animals in an article by R. I. Pocock, F.R.S., in the *March Strand*, there is none of the cat, the dog, the calf, or the rabbit, numbers of which die every year to help adorn our garments, while their pelts become known under such weird names as Baltic lynx, Siberian pony, inland seal, musquash coney, and French ermine. Of the magnificent furs of thirty years ago, taken from the polar aquatic animals, the seal and the south sea otter for example, none remains.

* * *

Among the true stories in the *Wide World Magazine* for February, is one called *The Doctor*, by Captain L. A. Fanshawe; hoping to find some details of the life of a member of the medical corps of the British army, we were shocked to find that the honorable title was only the nickname of an eccentric gunner of irregular habits but engaging personality. Providence failed to watch over this drunkard, according to the proverb, and he met with a dishonorable death by burning.

* * *

Meetings of Local Medical Societies.

MONDAY, March 29th.—Psychiatric Society of Ward's Island; Poughkeepsie Academy of Medicine.

THURSDAY, April 1st.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva Medical Society; Glens Falls Medical and Surgical Society.

FRIDAY, April 2d.—New York Academy of Medicine (Section in Surgery); New Utrecht Medical Society; New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association.

SATURDAY, April 3d.—Benjamin Rush Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending March 17, 1915:

Crohurst, H. R., Sanitary Engineer. Directed to proceed to Brunswick, Ga., for the purpose of advising the local health officers in regard to methods of sewage disposal on St. Simons Island, Ga. **Frost, W. H.**, Passed Assistant Surgeon. Detailed to represent the service at the meeting of the Lake Michigan Water Commission at Milwaukee, Wis., March 19, 1915. **Glennan, A. H.**, Assistant Surgeon General. Directed to inspect unserviceable public property at the Purveying Depot, Washington, D. C. **Hommon, H. B.**, Sanitary Chemist. Directed to proceed to the National Soldiers' Home at Hampton, Va., to inspect the chlorine sewage disposal plant recently installed at that institution. **Kalloch, F. C.**, Senior Surgeon. Relieved from duty at the Marine Hospital, Memphis, Tenn., and ordered to proceed to Portland, Me., and assume charge of the Marine Hospital at that port. **Letton, H. P.**, Sanitary Engineer. Relieved from duty in connection with plague eradication measures at New Orleans, La., and ordered to proceed to Chicago, Ill., and report to Surgeon J. O. Cobb for duty in connection with prevention of interstate spread of disease, Great Lakes Sanitary District. **Phelps, E. B.**, Professor. Detailed to represent the service at the meeting of the American Chemical Society at New Orleans, La., March 31 to April 3, 1915. **Spencer, R. R.**, Assistant Surgeon. Directed to proceed to Victor, Mont., and report to Surgeon L. D. Fricks for duty in the investigations of Rocky Mountain Spotted Fever. **Sweet, E. A.**, Passed Assistant Surgeon. Detailed as recorder of board of commissioned officers convened March 8, 1915, for the examination of candidates for the position of assistant surgeon, to serve during the illness of Assistant Surgeon General W. C. Rucker. **White, J. H.**, Surgeon. Granted one week's leave of absence from March 14, 1915; directed to proceed to Memphis, Tenn., and assume charge of the service at that port. **White, Mark J.**, Surgeon. Directed to report at the Bureau, March 17, 1915, for conference in respect to investigations of rural hygiene and the establishing of a laboratory at the Marine Hospital, St. Louis, Mo. **Williams, L. L.**, Surgeon. Granted one day's leave of absence on account of sickness, March 8, 1915. **Young, G. B.**, Surgeon. Leave of absence granted for one year from July 1, 1914, to terminate April 14, 1915; directed to proceed to Norfolk, Va., and assume charge of the service at that port.

Promotions.

Senior Surgeon Henry Rose Carter commissioned and promoted to the grade of assistant surgeon general at large, and Surgeons James Clifford Perry and Claude Conor Pierce commissioned and promoted to the grade of senior surgeon, under an act of Congress approved March 4, 1915, "To provide for recognizing the services of certain officers of the Army, Navy, and Public Health Service for their services in connection with the construction of the Panama Canal."

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending March 20, 1915:

Chappell, S. L., First Lieutenant, Medical Corps. Relieved from further duty at Fort Bliss, Texas, and will report for duty to the commanding officer, Fort Sam Houston, Texas. **Hall, J. F.**, Major, Medical Corps. Relieved from duty at Fort Strong, Massachusetts, and will proceed to the Walter Reed General Hospital, Takoma Park, D. C., assuming command of Field Hospital No. 6, relieving Major P. S. Halloran, Medical Corps, who upon being thus relieved from such duty, will proceed to Fort Sill, Oklahoma, for duty. **Jones, Edgar C.**, Captain, Medical Corps. Relieved from duty at Madison Barracks, New York, and will proceed to Walter Reed General Hospital, Takoma Park, D. C., and assume command of Ambulance Company No. 6,

relieving Captain Percy L. Jones, Medical Corps, who will report to the commanding officer, Walter Reed General Hospital, for duty. **Smith, William H.**, Captain, Medical Corps. Relieved from duty with Field Hospital No. 3, Galveston, Texas, and from further duty at Fort Sheridan, Illinois, and will proceed to Walter Reed General Hospital, Takoma Park, D. C., and report to the commanding officer, Field Hospital No. 6, for duty, relieving Captain Ralph H. Goldthwaite, who upon being thus relieved will report to the commanding officer, Walter Reed General Hospital, Takoma Park, D. C., for duty. **Thayer, William S.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty, and will proceed to the Army Medical School, Washington, D. C., for temporary duty as special professor, for the purpose of delivering lectures, and upon the completion of such duty will stand relieved from active duty on the return to his home in Baltimore.

Births, Marriages, and Deaths.

Married.

Walter—Morse.—In Brooklyn, N. Y., on Wednesday, March 10th, Dr. Robert Walter and Miss Nora M. Morse. *Died.*

Armor.—In Columbia, Pa., on Sunday, March 14th, Dr. Smith Armor, aged ninety-one years. **Babendreier.**—In Alpena, W. Va., on Sunday, March 7th, Dr. Louis M. Babendreier, aged twenty-eight years. **Berry.**—In Detroit, Texas, on Friday, March 5th, Dr. J. B. Berry, aged forty-five years. **Britton.**—In Toronto, Ont., on Thursday, March 11th, Dr. William Britton, of Prince Albert, Sask., aged sixty-two years. **Chalmers.**—In Galesburg, Ill., on Thursday, March 11th, Dr. George Chalmers, aged seventy years. **Cotton.**—In Germantown, Pa., on Wednesday, March 10th, Dr. John C. Cotton, aged eighty-seven years. **Croft.**—In Columbia, S. C., on Wednesday, March 10th, Dr. Theodore Gailard Croft, aged seventy years. **Crooks.**—In Philadelphia, on Tuesday, March 16th, Dr. William C. Crooks, aged sixty-five years. **Farrar.**—In Berkeley, Cal., on Monday, March 8th, Dr. Joseph T. Farrar, aged sixty-five years. **Griswold.**—In Grand Rapids, Mich., on Tuesday, March 9th, Dr. Joseph B. Griswold, aged seventy-three years. **Hart.**—In San Francisco, Cal., on Friday, March 5th, Dr. Henry H. Hart, aged sixty-one years. **Hotchkiss.**—In Altoona, Pa., on Friday, March 12th, Dr. Gordon Beriah Hotchkiss, aged eighty-five years. **Irwin.**—In Florence, Pa., on Thursday, March 11th, Dr. Joseph B. Irwin, aged sixty-three years. **Juett.**—In Blandville, Ky., on Sunday, March 7th, Dr. David P. Juett, aged seventy-nine years. **Kingston.**—In Aylmer, Ont., on Saturday, March 13th, Dr. John J. Kingston, aged seventy years. **Lincoln.**—In Augusta, Me., on Sunday, March 14th, Dr. Charles Jewett Lincoln, aged forty-seven years. **Little.**—In Bloomington, Ill., on Thursday, March 11th, Dr. Jehu Little, aged eighty-two years. **Lorenz.**—In Chicago, Ill., on Friday, March 5th, Dr. Michael Lorenz, aged seventy-five years. **Love.**—In Harrison City, Pa., on Saturday, March 6th, Dr. Hugh Wallace Love, aged sixty-two years. **McDonald.**—In New Augusta, Ind., on Sunday, March 14th, Dr. William B. McDonald, aged sixty-four years. **Miller.**—In New York, on Tuesday, March 16th, Dr. Nancy Miller, aged eighty-four years. **Noack.**—In Bardston, Ark., on Tuesday, March 9th, Dr. Paul G. Noack, aged forty-eight years. **Noble.**—In Waterbury, Vt., on Tuesday, March 16th, Dr. Henry S. Noble, aged seventy years. **O'Donoghue.**—In Albion, Mich., on Saturday, March 13th, Dr. Willoughby O'Donoghue, aged eighty-seven years. **Stuart.**—In Quincy, Fla., on Thursday, March 11th, Dr. Henry Means Stuart, of Beaufort, S. C. **Thayer.**—In Northampton, Mass., on Monday, March 15th, Dr. George Dickinson Thayer, aged fifty-eight years. **Walton.**—In Ridgefield, N. J., on Thursday, March 11th, Dr. J. C. Walton, of Redsville, N. C., aged fifty-nine years. **Warner.**—In Vera Cruz, Ind., on Tuesday, March 2d, Dr. William Warner, aged sixty-two years. **Wells.**—In Birmingham, Ia., on Saturday, March 6th, Dr. John Cary Wells, aged eighty-six years.

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